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LECTURES
ON
MEDICAL JURISPRUDENCE,
NOW IN COURSE OF DELIVERY,
AT THE
UNIVERSITY OF LONDON.

BY PROFESSOR A. T. THOMSON.

LECTURE XL.

POISONING WITH MERCURY AND ITS PREPARATIONS (*continued*):—*Modes of testing corrosive sublimate in powder, in solution in water, or combined with a mixed fluid. Its detection by testing the contents of the stomach, or the stomach itself. Orfila's experiments in proof that corrosive sublimate is not reduced to its metallic state when in contact with animal matters. Treatment of poisoning with bichloride of mercury. Employment of the white of eggs.*—BICYANIDE OF MERCURY. *Poisonous effects of overdoses thereof. Testing for it when suspected to have been used as a poison. The treatment.*—THE IODIDES OF MERCURY. *Poisoning with the protiodide; the biniodide. The pernitrate and binoxide.*—THE SALTS OF COPPER. *Poisoning with wine, water, and food, kept in copper vessels. Poisoning with verdigris, a type of the whole class of these salts.*

BICHLORIDE OF MERCURY.

GENTLEMEN:—In proceeding to examine the proofs which chemistry affords in cases of suspected poisoning by the mercurial salts, we must endeavour to obtain the poison, if any can be found in its pure state; or the substances in which it may have been administered. The vomited matters must be carefully preserved; and every portion of the stomach and the intestinal canal, marked by the influence of the poison, should be cut out, and examined with minuteness. Some variations of the processes are required, according to the nature of the preparation. I shall point out these to you.

If the poison which has produced the symptoms that I have described to you, be supposed to be bichloride of mercury, we are to look for it either in the form of powder or in that of solution.

Now let us suppose that a white powder is found, with an acrid, brassy taste; we should divide it into two parts, if the quantity be adequate to admit of such a division. The first may be tested in its entire state, the second may be dissolved in water. The solubility alone, distinguishes corrosive sublimate from arsenious acid: twenty parts of water at 60° dissolve one part of bichloride of mercury, whereas the same quantity of arsenious acid requires nearly 100 parts of water for its solution.

1. In testing the powder, rub some of it on a plate of clean copper, and drop on it a little of the solution of chlorine: if it be bichloride of mercury, a dull grey spot is first formed, which assumes a silvery hue when rubbed. When the copper-plate is strongly heated this spot disappears. A particle of the powder may be dropped into a tube, lined with paper, and afterwards a little black flux also introduced: on withdrawing the paper, and submitting the shut-end of the tube, containing these materials, to the flame of a spirit lamp, if the powder be corrosive sublimate, a ring of metallic mercury will be sublimed on the sides of the tube. The tube should be preserved as part of the evidence to be produced in court; but it is necessary to hermetically seal both ends of the tube, to prevent the action of the air.

2. Put a drop of the solution of the suspected bichloride upon the outer case of a gold watch, or on a sovereign, and touch it with a penknife, or a key; an amalgam of the mercury of the reduced salt, and the gold, will be instantly formed if it be the bichloride; or if a drop of the solution be put on a plate of clean copper, and, when dry, well rubbed, an amalgam will also be obtained.

3. Drop into the solution, diluted with distilled water, some liquor potassæ; if it be the suspected poison, a reddish-yellow precipitate will fall, which is a hydrate of the deutoxide of mercury, whilst a hydrochloride of potassa remains in solution; or, if we employ lime-water, instead of liquor

potassa, a brick-red precipitate will be obtained, which is a deutoxide of mercury, and a hydrochlorate of lime remains in the solution. There is, however, a marked difference in the delicacy of these two tests. The liquor potassæ detects one part of the bichloride in 7000 parts of water: the lime water, one part in 400 parts of water.

4. Drop into the solution a little of a solution of hydriodate of potassa; a beautiful carmine-coloured precipitate will fall, **namely, the biniodide of mercury**; and on adding an excess of the solution of the hydriodate, the whole will be again dissolved, leaving the solution colourless as at first. This test will detect one part of the sublimate in 8000 of water. But with this test, as well as with the liquor potassæ, the same effects would result, were the tested salt pernitrate of mercury. To determine, therefore, that it is in the bichloride, add to the solution a drop or two of nitric acid, and then a solution of nitrate of silver; if a precipitate fall, which is soluble in ammonia, the salt is the bichloride.

If the salt tested have been mixed with sea salt, or with nitrate of potassa, no biniodide will be thrown down, as these salts dissolve it as soon as it is formed.

5. Add to a portion of the suspected solution, a solution of protochloride of tin, and after a short time add more of the solution of the protochloride of tin; and leave the precipitate to subside:—pour off the supernatant fluid, and wash the residue with distilled water; and, after subsidence, pour off the fluid and wash again, decant off the water, and wash repeatedly; a globule of mercury will remain. This process, carefully performed, will detect one part of sublimate in 80,000 parts of water: but it is essential that the solution of tin should be the protochloride, and that a sufficient quantity be used. In this case the protochloride of tin first robs the bichloride of mercury of a portion of its chlorine, and the chloride is precipitated; but the next addition robs it of the remainder, and reduces the chloride: the protochloride of tin is converted into a perchloride, which is washed away, and the mercury remains in the metallic state.

6. Drop into the suspected solution, a small portion of albumen; a precipitate is formed, which some chemists assert is a mixture of oxide of mercury and albumen; others, that it is a compound of the sublimate undecomposed, and the albumen.

Such are the tests of corrosive sublimate in the entire state, and in simple solution in water. The best are the reduction produced by the key on the gold watch-case; and the reduction by the proto-muriate of tin.

But the corrosive sublimate may be administered, in quantity sufficient to cause death, in brandy, in wine, in beer, in cider, or in milk. In testing suspected fluids of the nature of these, we must be regulated by three circumstances; namely,—1. Whether the fluid be clear, and free from any deposit: 2. Whether it contain a deposit: 3. Whether it be partly fluid, partly solid.

1. If the solution be clear, ORFILA directs us, first, to acidulate it slightly with nitric acid, and then to plunge into it a galvanic pile formed of a flat thread of gold applied round a slip of tin. If corrosive sublimate be present, the gold will become coated with a white amalgam: by drying the thread, rolling it up, and introducing it into a tube, metallic mercury will be volatilized on heating it in the flame of a spirit lamp. One objection presents itself to this test, viz., if the fluid contain no mercurial salt, the acid, or even a small portion of common salt, contained in the solution, will produce an alloy of the tin and the gold, which closely resembles metallic mercury. I have adopted the use of a wire of copper instead of one of gold, and I wind it round a sovereign, or a piece of gold; for if an amalgam be formed in this case it does not resemble the mercury in colour. If the quantity of corrosive sublimate be large, the deposit on the gold will be immediate; but if small, it may be necessary to leave the pile twenty-four hours, or even longer, in the liquid. Even after this period, no amalgam may be formed, and yet the fluid may contain corrosive sublimate. To determine this point, concentrate the solution, and having decolored by passing a stream of chlorine through the residue, introduce again the pile. If no amalgam be formed, we may then conclude that the suspected liquid contains no bichloride.

2. If the solution let fall a deposit, act upon it with the nitric acid as if it displayed no deposit; and if no amalgam be formed on the gold in twenty-four hours, then pass through it gaseous chlorine. Filter as soon as it ceases to be turbid, when the chlorine is passing, and again test it with the pile.

Gentlemen, these processes will display demonstrative evidence of the existence of a salt of mercury in the solution, but they do not prove that that is the bichloride. To determine this we must employ nitrate of silver, and endeavour to form a chloride. If, for example, the suspected bichloride be contained in beer, or tea, or wine, in all of which a deposit is thrown down, if we obtain much chloride of silver, then there is reason for suspecting that the bichloride has been present.

3. The third state of circumstances requires no change in the process, as far as the fluid part of the mixture is concerned: the solid parts are to be decomposed, by acting upon them by means of concentrated hydrochloric acid, and diluting with distilled water. The whole is then to be deco-

lored by means of a stream of gaseous chlorine; and, after being filtered, tested with the pile. In this process, says DEVERGIE, who recommends it, we have two objects in view:—1. The disorganization of the vegetable matter, which is thus transformed into a pulp, more or less homogeneous, so as to multiply the points of contact of the chlorine. 2. The transformation of the protochloride into the bichloride, which, of course, is rendered evident by the action of the pile.

Having demonstrated the method of detecting the bichloride of mercury in its simple state, when employed as a poison, we have next to point out the method of determining our chemical evidence when it is contained in some other kinds of mixed fluids. In some fluids, as I have already stated, the salt is rapidly decomposed, and converted chiefly into calomel; consequently it ceases, in a great degree, to be poisonous: thus, in fluids containing much albumen, gaseous matter, and gelatin, this takes place. In all organic mixtures, therefore, of this description, it is vain to look for corrosive sublimate; if they be tested with lime-water, or with liquor potassa, a black instead of a yellow oxide is obtained; or the influence may be altogether set aside, and the test prove nugatory. But we may not have even these fluids to operate upon; but, instead of them, only the contents of the stomach, or the organ itself: in what manner, then, are we to operate?

The first step, if we are operating on the contents of the stomach, is to boil these in distilled water, and strain through a coarse rag, instead of filtering; one portion of this strained solution is to be evaporated to the consistence of syrup, and then agitated with some sulphuric ether, and after it separates the ether must be taken up by the pipette, and allowed to evaporate. On dissolving the residue of the ethereal solution by evaporation, in boiling water, and testing with liq. potassæ, if corrosive sublimate be present, it will indicate itself by the appearance of the yellow deutoxide. If no yellow precipitate appear, the other portion of the fluid from which the ether was separated, may be filtered, and treated with protochloride of tin; the precipitate, should any take place, should next be boiled in a porcelain vessel, with liquor potassæ, and the precipitate from this, washed, dried, and sublimed by heat in a small tube; the appearance of metallic mercury will afford sufficient proof that corrosive sublimate has been present.

It has been said that corrosive sublimate is reduced to its metallic state when it comes in contact with animal matters; but experiments by ORFILA upon dogs have ascertained that this is not the fact, even when the salt and the animal matters are kept in contact for many days. Many substances decompose the salts of mercury, and render the corrosive sublimate inert.

In these experiments, although the doses of bichloride of mercury which destroyed the dogs were large, namely, from three to four grains, none of the salt could be found in the stomachs of the animals. The mode of examination adopted was first to wash out the contents of the stomach with a small quantity of distilled water. In the first experiment ℥j. was used: it was deeply tinged with blood, and left at rest for thirty hours; after which more water was added to it, and it was first strained and afterwards filtered. The fluid was next tested by a solution of protochloride of tin; and by a piece of gold clasped by a piece of zinc wire; but in neither case was any indication of the presence of the bichloride obtained: yet by comparative experiments made on a solution of the bichloride, the same tests detected it when the strength of the solution was only one part of the sublimate in 300.000 of water. The conclusion necessarily was, that an animal may be suddenly killed by receiving a metallic poison, such as the bichloride into the stomach, and yet that the best tests may not be able to detect any portion of the poison after death in the contents of the stomach.

Thirty-six grains of the protonitrate of mercury in solution, were injected into the stomach of a dog, and followed by the administration of a drachm of the protosulphate of iron; this produced mercury in metallic particles, minutely divided, and visible only by a magnifying lens, when the stomach and intestines were dried. Even without the addition of any other substance, the most active of the salts of mercury may be reduced in the stomach.

If we have only the stomach to operate upon, and cannot, as is most likely, find any particles of corrosive sublimate in it, cut the organ to pieces, and boil in distilled water, acidulated with hydrochloric acid; filter, and having passed through the fluid a stream of chlorine, to congulate and remove any animal matter, filter again, evaporate nearly to dryness; and then treat the residue with ether, and proceed as before.

The employment of the hydrochloric acid is unnecessary when the suspected matter is in a liquid state, because in that condition all the organic matter is in a form which is readily attacked by the gaseous chlorine. In passing the chlorine gas, a brown deposit is produced in the bottom of the receiver. The fluid must be frequently agitated, and the stream of gas suspended, now and then, until the whole is decolored.

In all of these cases there are two suppositions, namely, that the bichloride is either not decomposed in the suspected solution, or only in part. The chlorine, in both cases, is useful as a decoloring agent, but

in the second the solid part must be broken down by the hydrochloric acid before employing the gas.

When called to a case of poisoning by bichloride of mercury, the first object, as in the case of all irritant poisons, is to free the stomach from the poisonous agent; and here we have the advantage of means to destroy the energy of the poison, by changing its chemical character, and rendering it inert. There are two substances well adapted to effect this purpose, namely, the white of egg, dissolved in water, and the gluten of wheat, combined with soft soap, triturated in a mortar so as to form a perfect mixture, which is afterwards to be dried by spreading it on a plate, until it can be reduced to a powder. ORFILA proposed the first, and M. TADDEI the second of these antidotes.

1. In the experiments made by ORFILA, dogs suffered no inconvenience from taking sixty grains of the white precipitate, formed by precipitating a solution of the bichloride of mercury with the white of egg. In other experiments, death occurred 3 days after giving 12 grains of corrosive sublimate, mixed previously with the whites of six eggs in four ounces of water; and this also occurred from six grains of the poison, although eight whites of eggs were administered immediately after the poison was swallowed. Twelve grains of the bichloride in solution, mixed with only the whites of two eggs, killed a dog in two hours, under the most horrible suffering. From these and similar experiments, ORFILA concluded,—

1. That the triple compound of mercury, chlorine, and albumen may be taken in a large dose with impunity.

2. That a large quantity of white of egg, dissolved in water, and mixed with corrosive sublimate, exerts little deleterious action on the habit.

3. That dogs who have taken ten or twelve grains of corrosive sublimate, and who have the faculty of vomiting, rarely perish when they take white of egg dissolved in water.

4. That albumen is the only true antidote of corrosive sublimate.

These conclusions appear to me by no means authorised by the results of the experiments; and although it must be admitted, that albumen diminishes the energy of corrosive sublimate on the tissues, yet it cannot, in strict language, be regarded as a powerful antidote of this poison. DEVERGIE made some experiments with the yolks of egg; and he recommends them to be administered in a small quantity of water, in the same manner as the solution of the white. I have had no opportunity of trying the efficacy of the yolk of egg; but as I know, and have had experience of, the benefit of the white, I recommend you to use them beat up together, with a moderate quantity of water, or in milk, and very freely administered. Indeed, I am of opinion, that one of the causes of the white of egg failing, in some cases, may in part be attributed to the small quantity administered. In some experiments which I made upon dogs, it seemed to weaken the poisonous influence of the sublimate, in the direct ratio of the quantity given to the animals.

2. With regard to the employment of TADDEI's mixture of soap and gluten, some experiments made with it on dogs, by DEVERGIE, do not authorise me to recommend it to your notice.

Should neither albumen, nor eggs, nor gluten be in the way, I recommend you to employ the stomach-pump with milk instead of water, or with cheese rubbed up with water.

To illustrate the influence of the albumen, I will notice a case which was published ("Edin. Med. and Surg. Journal," vol. xiv.) by Mr. Anderson, of Belfast.

A woman of the name of Rose Maney had poisoned herself with corrosive sublimate; various means were tried, with little benefit, until the morning following, when Mr. ANDERSON was recommended by Dr. MACDONALD to administer the white of eggs. "I gave her," says Mr. ANDERSON, "the white of two eggs, beat up with a little cinnamon water; and ordered the same quantity to be given every half hour, and to intermit the starch," which had been freely given: "At two o'clock, when she had taken the white of twelve eggs, she felt rather easier, had vomited only twice since the morning; the pulse was 104, not so much corded; profuse ptyalism; has had three stools, with tenesmus, since the time I had seen her. Ordered an emollient injection; to continue the whites of eggs, and warm fomentations. At 5, P. M., found her very weak, but the pain of abdomen much relieved, and the tenesmus gone." At 10 she was nearly in the same state; the whites of eggs were continued. She took, in all, thirty-two whites of eggs; and gradually, after leaving them off, continued progressively improved until the 10th, when she complained of nothing but weakness.

In this case the quantity of albumen administered was considerable, but, as it was given at so late a period, it is wonderful that it operated so beneficially.

Along with the administration of albumen, bleeding should be resorted to, with counter irritation, and every means likely to subdue the inflammatory condition of the stomach and gullet; and as the inflammatory action extends to the kidneys, demulcents and milk should be administered. The great necessity of pushing the antiphlogistic plan to its utmost, is obvious from the appearances which post-mortem examinations

display, as well as the result of cases in which it was employed. Salivation is at the same time prevented, and checked if it have appeared, by the discreet use made of the lancet; for the same circumstance which aids the introduction of mercurials into the system, namely, bleeding, by again relieving the glandular system of the stimulus of blood loaded with the existing cause of their increased action, necessarily relieves that action.

In bringing up the strength, the same means are requisite as in a case of violent ptyalism, or mercurial erythism, namely, free exposure to cool, dry air, and simple tonics, with a mild nutritive diet.

PERNITRATE OF MERCURY.

The *pernitrate of mercury* in solution, is used for several purposes in the arts; and has been employed as a poison. DEVERGIE details a case of this kind:—

A butcher's boy dissolved seven parts of mercury in eight parts of nitric acid, and added a little verdigris. At nine o'clock of the evening he took a teaspoonful of this solution, and a few minutes afterwards drank a pint of beer. He was immediately attacked with horrible pains of the pharynx, the œsophagus, and the stomach, which were soon followed by cold extremities, small pulse, colic, and diarrhœa. By degrees collapse supervened, and at midnight he died, his intellectual faculties remaining entire to the last.

On opening the body, the back of the tongue and the epiglottis were found blistered; the larynx and the trachea deeply injected; the pharynx was of a deep red, displaying here and there patches of a purplish-red, and several hard, rough, brown crusts, about the size of a bean, constituting imperfect eschars. The stomach was thickened; the whole mucous membrane was of a deep rose colour, and, towards the cardiac portion, some minute livid patches, resembling eschars, were perceived. Similar appearances were observed in the duodenum. The smaller intestines were generally red and injected, especially near the cœcum, but this diminished towards the rectum, which was altogether untouched.

The chemical evidence, in such a case, is derived from testing, as for corrosive sublimate; with the negative proof of the absence of the bichloride, from no precipitate being formed in the solution acidulated with nitric acid, on the addition of nitrate of silver. When the solution is boiled with liquor potassæ the nitrate is decomposed; nitrate of potassa is formed and held in solution, whilst binoxide of mercury is precipitated.

The treatment of these cases is the same as those of poisoning with bichloride of mercury.

BICYANIDE OF MERCURY.

Bicyanide of mercury, so far as I know, has never been employed as an agent of either suicide or murder; but it has been overdosed, and also it has been taken by mistake in doses sufficient to cause poisonous effects. M. KAPELER details a case of this kind, which occurred in 1825. The person swallowed *thirty-five grains and a half* of the salt. The symptoms closely resembled those of poisoning by corrosive sublimate, and the case terminated fatally in nine days. The most marked symptoms were vomiting, salivation, with ulceration of the mouth, purging, complete suppression of urine, demi-erection of the penis, and ecchymosis of the scrotum, cramps of the heart, and convulsions.

The post-mortem examination of the body displayed an inflamed state of the mucous membrane, both of the stomach and the intestines, and infiltration of the submucous cellular tissue in the inflamed points, and swelling of the kidneys.

Some experiments of M. OLLIVIER, of Angers, on dogs, displayed similar symptoms and appearances. He also injected the solution into the cellular tissue, and found that it operated more rapidly in that case than when it was swallowed. It excites great irritation in the part, and is absorbed; thence its secondary general action on the habit. TIEDEMAN and GMELIN detected the salt in the blood of the splenic and mesaraic veins of dogs and horses which were killed by it; we therefore conclude that it poisons chiefly by its secondary action.

When a case of poisoning by this salt occurs, we have to look for—1. Any portion of the poison which may remain. 2. To examine the vomited matters. 3. To examine the contents of the stomach; and, 4. The stomach itself.

1. *a.* If any of the poison remain, it is recognized by its quadrangular, obliquely-terminal crystals; its styptic taste, and its ready decomposition by heat, with the extrication of cyanogen, whilst the tube in which it is burnt becomes coated with metallic mercury. The tube should have the form *a*, and be terminated by a glass jet, *b*, fixed in a sound cork, *c*, made air-tight. By holding the tube over the flame of a spirit lamp, *d*, the gas which escapes when ignited, will burn with a violet-coloured flame.

b. If the poison have been taken in solution, and some of it remain in the cup, or glass, dilute it moderately with distilled water, and pass through it a stream of sulphuretted hydrogen gas. If the poison be the bicyanide, a black sulphuret of mercury will be formed, and hydrocyanic acid be held in solution, a fact which is readily demonstrated by filtering the fluid, and testing it for the acid: the formation of Prussian blue demonstrates its presence.

2, 3. If we have only the vomited matters, or the contents of the stomach, to act upon, we must boil these with alum; filter, and precipitate the solution with nitrate of silver, weigh the precipitate when dry, and then treat it with boiling nitric acid, to dissolve any chloride of silver it may contain, produced by the hydrochlorates contained in the stomach. The loss of weight will indicate the quantity of cyanide of silver obtained. To prove that the precipitate thus procured is cyanide of silver, decompose it by hydrochloric acid, which forms with it an insoluble chloride of silver and hydrocyanic acid. By testing the latter our evidence is complete.

The treatment of cases of poisoning by this preparation of mercury, is the same as that for poisoning with corrosive sublimate. I have seen no case of it.

IODIDES OF MERCURY.

The iodides of mercury may be overdosed, and prove poisonous; the symptoms which they produce closely resemble those of poisoning by corrosive sublimate. If any of the poison remain, they are readily recognized by their physical appearance, and as readily detected by chemical means.

The *protiodide*, in its ordinary state, when it is not sublimed, is a greenish-yellow powder, insoluble in water, even when it contains chloride of sodium. I have suggested the following mode of testing it:—Heat it in a glass tube, and it sublimes unaltered; but if chlorine be then poured into the hot tube, the violet vapours of the iodine, which is thus set free, are instantly perceived. If it be heated with potassa, metallic mercury is sublimed, and iodide of potassium remains in the bottom of the tube. By dissolving this with distilled water when the tube is cold, adding to it some starch, and pouring on it a little chlorine, the iodide of amidine, of a deep blue colour, being formed, completes the chemical evidence of the nature of the poison.

The *biniodide* is a beautiful scarlet powder when unsublimed; it fuses readily, and sublimes in the form of yellow scales, which become scarlet on cooling; and when chlorine is poured into the hot tube, violet fumes of iodine are instantly perceived. It is readily distinguished from the protiodide by these characters, and also by its solubility in a strong solution of chloride of sodium.

I am not aware that any cases of poisoning by this salt are recorded.

The *binoxide of mercury* of the present London pharmacopœia so closely resembles the iodide of lead which has been procured by simple precipitation, that, in cases of poisoning by either of these substances, the one might be very readily mistaken for the other. In order, however, to distinguish them, boil the suspected substances with some distilled water, and, when cold, add mucilage of starch, and pour over this mixture a little gaseous chlorine; if it be the binoxide of mercury, no blue colour will be developed, but blue will be the case if it be the iodide of lead.

SALTS OF COPPER.

Metallic copper, like many other metals, is not poisonous: halfpence and other copper coins have been swallowed, and have remained a long time in the stomach, without producing the smallest injury. Two cases came under my own care, in one of which, the boy, who swallowed a penny piece, did not pass it until six months had elapsed; in the other case, a younger boy also swallowed a penny piece, and passed it by stool two months afterwards. In both instances the coins were much eroded, yet no effect upon the health of the children was observed. Dr. PARIS mentions a case in which sixpenny pieces were swallowed to cause suicide, and remained six years in the intestines; and Dr. BAILLIE has recorded a case in which the coin swallowed was imbedded in a pouch of the stomach.

Water kept in copper vessels slowly forms a circle of carbonate of copper at the point of contact of the air and the water, in the sides of the vessels: but water boiled in copper vessels receives no deleterious taint from the copper. M. DROUARD made an experiment by keeping water on copper filings, in a well-corked flask, for many months, and found that the water had not taken up a single atom of the copper. When copper vessels are kept very clean, and are used for cooking, no accidents occur; and animal food, or fish, or vegetables, may be boiled in salt and water in copper vessels with impunity; but a simple solution of salt, if no animal matter be present, becomes poisonous when boiled in these vessels. From these facts we may conclude that copper itself is not poisonous. Even pickles and acid matters may be cooked in clean copper vessels with impunity, if care be taken not to allow them to stand in the pans afterwards.

It is, in every instance, the combined action of moisture, air, acids, or fatty matters, which forms the green carbonate on copper vessels, and renders them injurious; and the same circumstance occurs if food be cooked in copper vessels, and be left for some time in the vessels. In 1781, twenty friars in Paris were poisoned by a skate which had been boiled with vinegar and water in a copper kettle, and left for a couple of hours in the pan. DUPUYTREN mentions a fatal instance of poisoning by lobsters cooked in the same manner, and left to cool in the copper-pan. Nevertheless almost every

large turbot that is cooked in London, is boiled in a copper pan; but it is not left in the vessel after it is cooked.

In some parts of the continent, wine is kept in copper cisterns, and it often acquires deleterious properties. Fodere mentions an instance of this kind, which happened at the village of Aoste in 1790; and in 1592, at a great meeting of the Swiss senate at Berne, the wine was put into copper vessels, and suspended in a well to cool it. In a few days, many of the deputies were seized with colic, vomitings, and purgings; and several of them died.

I am not aware that salts of copper have ever been employed as agents of murder, but they have been used by the suicide. Bisulphate of copper was also employed by the bakers of Bruges instead of yeast, to assist in raising the bread which they baked; and the protosulphate is now, more than ever, administered as a medicine, and consequently may be overdosed. These are sufficient reasons for examining the poisonous properties of this class of salts. I shall take into consideration the action of verdigris as a good type of the whole class.

Verdigris is both a natural and an artificial production.

1. Natural verdigris is produced by the action of the carbonic acid of the atmosphere on native copper, and on copper under any circumstances, when it is exposed to the joint action of air and moisture. It is chiefly a carbonate of the metal.

2. Artificial verdigris is a mixture of the carbonate, the acetate, and metallic copper, in greater or less quantity, according to the mode of preparing it. This description of verdigris is only partially soluble; that which is dissolved is the most poisonous portion of the preparation.

Now let us suppose a case of poisoning by a salt of copper, which is the subject of a coroner's inquest, and you are asked, "What reasons have you for supposing that the poison is verdigris, when you have only the symptoms to judge of?" What should be your reply?

Generally, in poisoning by salts of copper, unless the poison be taken in substance in a large dose, or very slightly mixed in water, the invasion of the symptoms does not take place until ten or twelve hours after the poison has been swallowed; although, in swallowing the potion, or the poisoned food, there is an aridity of tongue, and a styptic taste in the mouth. The other symptoms generally occur first in the night; the person is awoke with a violent headach, with a sensation of great debility in the limbs, painful cramps: after a short time colic supervenes, with nausea, vomiting, first of the ordinary ingesta, and then of bilious matters. The colic increases in severity; tremblings of the limbs, with copious sweatings, accompany it: the pulse is small, unequal, and very frequent: diarrhœa, or constant and ineffectual desire to evacuate the bowels, follows, with swelling and tenderness of the abdomen: the stools are either blackish-green, or green simply, but they are rarely tinged with blood.

The *urinary organs* are affected with suppression of urine: the *thorax* displays great disturbance of respiration; the action of the heart is weakened, and the pulse is small and irregular.

On the *nervous centres* the poison displays its influence by convulsions; paralysis, sometimes resembling that caused by carbonate of lead: occasionally tetanus, with great rigidity of the limbs, and vertigo and syncope supervene.

The most striking diagnostic symptoms of poisoning by the salts of copper, is a deep yellow colour of the skin, resembling that of jaundice, and a singular tinge of blue round the eyes.

When jaundice appears during life, it seldom shews itself before sixteen hours have elapsed. This appearance of jaundice is, indeed, an excellent diagnostic symptom of poisoning by salts of copper, as nothing of the kind occurs either with salts of arsenic, mercury, or lead. The tetanic symptoms obscure the diagnosis; but their termination in paralysis and coma, distinguishes them from the tetanic symptoms caused by strychnia.

It has not been ascertained whether these secondary symptoms are due to the absorption of their cuprious salts, or to their influence by nervous sympathy.

LECTURES
ON
MATERIA MEDICA AND THERAPEUTICS,

NOW IN COURSE OF DELIVERY
AT THE
WINDMILL STREET SCHOOL OF MEDICINE,
BY
GEORGE G. SIGMOND, M.D.

Lecture XX.

Digitalis (*continued*):—*Exaggeration of its merits when first discovered. Its use as a curative in the early, and as a palliative in the latter stages of phthisis. Our present knowledge of and influence over phthisis pulmonalis. Diagnosis of that disease by the pulse. Frequent neglect of this peculiar sign. Those causes calling into action the ravages of phthisis, which may be obviated by digitalis. Period of life in females when the full deve-*

lopment of their sexual system commences. Its high excitement. Its liability to result in phthisis. Other morbid conditions which ensue when consumption does not occur. State of the uterine system. Medical treatment. Cure by nature. (Solution of the salts in large doses of water.) Cautions respecting the continuance of digitalis. Its effect on the urinary secretion; and on appetite. Its influence on the pulse. Its action as an emmenagogue. Single menstruation of voyagers to India. Employment of digitalis in insanity, epilepsy, and other diseases, and during pregnancy.

GENTLEMEN:—Great were the expectations raised of the value of digitalis in the cure of consumption. Dr. BEDDOES, Dr. DRAKE, and other writers, hailed it as a decided specific; it was stated that it very speedily exerted a most remarkable effect upon the quantity and upon the quality of the matter that was expectorated, either by promoting its absorption, or by diminishing its secretion, or probably by its producing both these effects in a rapid manner: it was declared capable of depriving the excretion of its peculiar fœtor. The possibility of the herb retarding the circulation for weeks together was considered most important. Dr. BEDDOES, a man of high philosophic spirit, but always too sanguine, emphatically declared that the discovery of the power of digitalis, "was a cause for national rejoicing, greater and more universal than has before occurred." The high commendations which were so loudly and repeatedly bestowed upon this herb, by so many men of high and established reputation, did not, however, prevent many individuals, profoundly versed in medical science, from expressing their hesitation and their doubts; they declared it to be unreasonably extolled, and very fairly furnished the profession with ample means of judging of the real efficacy of the vegetable, and I cannot but think that we are now in possession of a knowledge of its intrinsic merits, and that without, on the one hand, incurring the reproach of rashness, and, on the other hand, of incredulity and timidity, we may employ it with advantage to the sufferer, and satisfaction to ourselves.

It is only in the early stages of phthisis that digitalis can be ranked as a curative agent, but it may, in its later moments, be equally important as a palliative. The high character it has obtained, has been from its having been employed before the breaking down of tubercles in the lungs; but upon a careful review of those cases which are contained in our periodical literature, as well as from an inquiry into the opinions of the most enlightened men of our profession, and from the quantity of experience which the practice I have myself seen has afforded me, I am convinced that when actual disorganization has occurred, no remedy that we have as yet discovered will lead to the eradication of the disease. The insidious approach of consumption, at a certain period of life, in this country, demands from you very serious investigation, that you may ascertain whether you possess the power of arresting its progress by the exertion of judgment and of energy. No one can be more alive than I am to the great, to the praiseworthy efforts that have lately been made to investigate the diseases to which the viscera contained within the thorax are exposed, and no one can look forward with more sanguine expectation than I do, to the ultimate end of the diligence and sagacity which are so well directed, but I must impress upon your minds, that little has yet been detected to enable us to administer more efficacious remedial agents, and that now, as we have arrived at certain distinct truths as to the ravages committed by the disease, and as to the immediate seat of the morbid changes produced by it, our minds should be turned towards the consideration of the adaptation of therapeutic agents to the different states and stages of pulmonary irritation, whether it be developed in the mucous membranes, the serous membranes, or the parenchyma of the lungs.

As those who have most studied the history of consumption concur in the opinion of the insufficiency of our power over tubercular phthisis, it becomes the more imperative on us to be familiar with the premonitory symptoms, for then we can ward off the threatening danger. The golden maxim, "venienti occurrite morbo," is no where so rigidly to be enforced as where suspicion is excited that the system is predisposed to this melancholy disease, which is more than usually striking from its selection of the most interesting victims, at a period when our sympathy is most excited in their favour. There are some who "lay the flattering unction to their souls," that they have cured the true, genuine, pulmonic phthisis, where tubercles have been fully developed, where their structure has been broken down, and have poured forth the purulent discharge. I assure you they have been deceived. There are instances, nor are they very uncommon, where even fever, attended with copious expectoration of viscid mucus, has worn the fatal appearance, and where it has been stated that the individual is in a rapid consumption—one of those false terms which mislead. Hectic fever has been present, attended with morning and evening exacerbations, night sweats, wheezing cough; chlorosis has likewise borne somewhat similar appearances; there may be harassing cough, pain in the chest, or side, rigors, succeeded by great heat, and not unfrequently night sweats. These states have yielded to appropriate treatment, and the medical man has believed that they were consumptive cases,

and I could point out to you several instances of such histories being detailed. Dr. MACLEAN has very forcibly and practically illustrated these points in his observations on the digitalis purpurea.

In the coming on of consumption there is one great, and never-to-be mistaken symptom, the state of the pulse, which too often escapes observation, but which reveals more than does the cough, the loss of strength, the emaciation of the body. It is singular that this, the pathognomonic symptom, which is peculiar to pulmonary affection, so often passes unheeded, that many of our best writers merely mention its quickness, and that, in the present day, some of those authors on diseases of the chest, who will hereafter be ranked among our classic medical authorities, devote so little attention to a diagnostic mark of such value,—one which, in my mind, is of fully as deep importance as the signs that are conveyed to the sense of hearing by the stethescope or by percussion. It has been generally acknowledged that certain individuals are incapable of the nice tact of distinguishing disease by the pulse. That there are many shades of distinction which can be perceived by but few, I have little doubt; but I think that the principal obstacle we have to encounter is the conveying to others the sensations which are excited in our own mind. The indication of consumptive tendency by the pulse is much more easily recognised than it is explained to another, and in consultation with more than one experienced individual I have heard the same remark. I think you will find that the peculiar rapidity of circulation exhibited in the pulse indicates an extraordinary state of irritability of the living fibre; it is not that which is attendant upon fever, it has neither the strength nor the hardness of the inflammatory, nor has it the weakness nor the smallness which belongs to low fever, and in both of which states there may be increased celerity of the pulse; there is tension, but it is not the whipcord feel of inflammation; there is a vibration, but it is essentially distinct from that which betokens disease of the heart; it is extraordinarily dependant upon mental emotion, and its rapidity is excited by moral causes in a most surprising and unaccountable manner.

It would be vain for me to enter upon a discussion of the fertile causes that call into action the latent susceptibility; I can only here allude to those which I believe may be obviated by the particular medicine which I am now taking as the theme of my discourse. It is only by clinical instruction that you can obtain a faithful delineation of the ever-varying portraits which the pictures of disease present to you; for although the general features are essentially similar, each one has its own particular shade and colouring, on which you must learn to look with discerning and contemplative eyes.

There is no state of incipient consumption in which digitalis, properly administered, is of such infinite importance as when this disease first arrests our suspicion as being likely to occur in the young female, in whom, at the age of puberty, nature exerts herself, with unerring precision, for the full development of that system upon which the increase of our species depends. These efforts of nature are almost invariably successful, and the greater number of females are, after a short interval, prepared to fulfil the destiny for which, as a sex, they were ordained. It is at this moment, however fair may be the external form, that that form is most fragile. Nothing can be more exquisite in nature's works, than that which she has taught us most to admire and esteem,—a woman in the full possession of her bodily attraction and her mental charms. Probably one of the most enchanting delineations that ever was drawn, is to be found in the "Conspectus Medicinæ Theoreticæ" of my revered preceptor, Dr. GREGORY, of Edinburgh. He has, in classic language which CICERO or TACITUS would have admired, painted woman such as she is when the full development of her system is announced by her external appearance. But how soon is that superabundance of health exchanged for suffering and for sorrow, if the purposes for which she was created cannot be carried into effect,—if that quantity of nutrition, which is not only intended for herself but for her offspring, be not carried off by the channels which nature has prepared. Every thing now proves that the circulation is in a state of easy acceleration. In an instant the heart quickens with an unnatural throb; the face is quickly flushed; the mind, like the body, is in an electric state; every chord is tremblingly alive to the touch; its tension is irresistibly strong; every vibration is conveyed along the whole frame; the pulse quickly shows the mental emotion; the cheeks are crimsoned with its modest glow, or are deeply suffused; the eyes radiate the light of love, sparkle with the illumination of genius, or beam with the fondest and the truest affection; there is a gentle warmth, and all that can betoken the highest health gives hope and expectation of joy and life. There is now a great determination to the thorax, but more particularly, externally, to the glands which are destined to secrete the future nutrition of the offspring; they are fully charged with blood, from which the milky fluid is to be secreted. Exposure to cold is sufficient to determine the blood to the internal membrane; hence young women have inflammation of the thoracic contents even from personal exposure, owing to a bad fashion of dress; but these inflam-

mations yield much more readily to external counter-irritants, such as blisters, than they do in men, in consequence of more ready determination of the capillary vessels to the external surface than to the internal; but these frequent slight colds call into action any predisposition to disease of lungs which may exist; and where, at first, the membranes only were diseased, the lungs become solid, ulcerated, or changed in their structure.

Every thing tends, at this eventful moment of life, to increase the circulation; yet there seems a wonderful adaptation of means to carry it on without endangering the functions of the various organs; congestions do not occur, but the tendency is to fill every minute capillary vessel, which again quickly unloads itself. It is not only the arterial system that is thus replete, but the venous system partakes of the fulness: you observe the white coat of the eye sometimes exhibit a most beautiful hue, there is an exquisite tint of blue which gives to the pearly membrane a shade that has something of heaven in it, something so supernatural, that Byron's line, "that eye was in itself a soul," appears not only poetic but descriptive; this depends upon the minutest venous channels of this coat being charged with the blue-coloured blood which circulates in the venous system. At no other period of life is this visible. Sometimes the heart labours with the fluid that is transmitted through it, the slightest exertion produces palpitation, and you will find young females constantly liable to this state, which has been mistaken for organic disease. Indeed, I myself have known instances where the adroit stethescopist has pronounced an affection of the heart where there was only this state peculiar to the age and sex. You will hear it often remarked, that females have lived for years after it has been formally announced that there is organic alteration of this great centre of life. In such cases small quantities of the tincture of digitalis only occasionally exhibited, beginning with five drops, will act most beneficially, and, if combined with an equal quantity of tincture of opium, will, in those high states of nervous excitement to which young ladies are sometimes subject, prove much more useful than the aromatic spirits of ammonia, the camphor, the hartshorn, which momentarily stimulate. This is a useful combination on very particular and urgent occasions, but it is by no means to be frequently had recourse to; it is only when necessity demands it that digitalis is to be used. In consequence of the acceleration through the lungs, the minutest vessel becomes full of blood; each capillary is surcharged; not only the pulmonary vessels are in this state, but the investing pleura is absolutely injected with fluid; still there is not inflammation unless some exciting cause occurs; if cold constricts the extreme ends of the vessels, this takes place, and the thoughtless imprudence of youth too often exposes the delicate system to the dangers that are consequent upon it. A cold, variable climate should at this time be avoided, and the diet must not be too stimulating; every thing that can carry off the accumulated irritability of the system must be administered. It is to be remembered, that in the majority of cases phthisis does not occur, as many writers (very judicious on other points) have stated, when puberty arrives, and the system is to be placed in its new state, but it is after that time; for nature is generally successful in the accomplishment of the change, however much it may be retarded, and if she be not, the disease that is produced is not wasting of the lungs, but of the body generally. In the state to which I have drawn your attention, there has been demanded another channel to carry off the nutrition in which some precocious individuals is prepared at a very early period, and all their functions are carried on with a vigour which is too great for their feeble habits. Should the proper circumstances not arise, and consumption not occur, various other morbid conditions quickly present themselves.

The uterine system first betrays the constitutional disturbance, by headach, pain in the loins and the back, heat of skin, quick hard pulse, sometimes great tenderness of the abdomen, which would almost indicate the necessity of abstraction of blood, but for which the tincture of digitalis, combined with opium, or with tincture of iron, according to circumstances, will be most efficacious. Medical interference, in all these cases, must be most carefully limited, for upon judgment must depend the future happiness of some of the most interesting subjects of our skill. How often do we see disorders of that period yield spontaneously. In some cases you will find young females, at this eventful moment of their existence, complain of the most severe suffering in the very lower region of the back; this is mistaken, probably, for disease of the spine; the unfortunate victim is sometimes condemned for months to a reclining posture; is tortured in every way that honest but mistaken zeal and ingenuity can suggest; and, to use the favourite expression, "every thing has been tried," when probably, to the astonishment of the uninitiated, some emotion of the mind kindles a new train of thought; she awakes as from a slumber and from a dream of harassment, and, in the figurative but descriptive language of the East, "She takes up her bed and walks." As the young lady has probably had the advice of "all the first men in London," who, knowing the real state and cause, have not been able to effect a cure, but, most probably, have told, in as delicate a manner as possible, the truth, she has had, as her

last doctor, some shrewd bold man, well acquainted with the world, who has, whilst his pockets have been lined with fees, led on her friends, by exciting their hopes, and making their credulity subservient to his views. The case is related as a wonder, and the *natural result* proclaimed to be a great *cure* performed by a marvellous learned man. It is the frequent result of our present state of society, that many females must be disappointed, and incapable of fulfilling the general destiny, and that to some it must be pregnant with mischief; it is for you, as philosophers and consolers of the human race, to obviate, as far as you can, the unavoidable sorrow that may grow out of it to individuals. We cannot, from any unfortunate examples, conclude that our moral system is bad; I believe it to be the best for our social condition; for "when the women are chaste the men will be brave."

I would have you, whenever the care of families is committed to you, regard each member of it as your personal friend, and though you may be liable to the caprices of individuals, you will eventually gain esteem and regard. I think you should look with parental solicitude to your youthful patients at the time of which I have spoken; remember there is a general susceptibility to extraordinary vascular action, but not to inflammation; there is an unwonted but not altogether unnatural condition of the blood vessels, which is necessary for the performance of peculiar functions. You may arrest undue action by digitalis, administered occasionally in the form of tincture, but it is not to be persevered in, and long intervals are to be allowed to pass between each period of prescribing it.

In proportion to the early exhibition of the foxglove in pulmonary disease, will be the success that you may expect from it. When the duration of what was supposed to be a slight cold is longer than ordinary, when the cough appears to be aggravated on going to bed, when the pulse is at different times in the day more than usually quick, when a slight difficulty of breathing is perceptible in a horizontal position, when the heart beats violently on going up or down stairs, and we observe the individual to be of a delicate habit, and under twenty years of age, we must watch with great tenderness and anxiety, lest symptoms of a more aggravated character supervene, nor is it then too early to give from ten to fifteen drops of the tincture of digitalis, three times a day for three successive days, and then to wait, or gradually to diminish the dose; if there be chlorotic symptoms in the female, for they not unfrequently are developed at the same time, the tincture of the muriate of iron, now called tinctura ferri sesqui chloridi, may be administered, or the mistura ferri composita; these preparations will have their efficacy much improved by the digitalis, and their doses should be smaller in proportion. Indeed, the tincture of iron is more serviceable in small doses largely diluted in water, than in large doses in a small quantity of fluid; this rule holds good in many of the salts, which have their powers very much increased by their being held in solution in much larger quantities of fluid than in this country we are in the habit of prescribing.

Digitalis should often be discontinued, sometimes at once, at others by degrees, and then again had recourse to; but even the very gradual increase of the dose is most cautiously to be watched: if giddiness, pain in the head, throbbing at the forehead, or in the orbits; if there be unwonted vision, such as ocular spectra, a cloud interposing between objects usually clear; if small spots appear to be waving in the air, if nausea be present, it must immediately be abandoned, and may again be tried; but if your patient complains "of a faintness or sickness at the stomach as if their life was going from them," an expression which, even at the time of Dr. MACLEAN, was observed to be the most striking effect, when an individual is under its full influence, and almost all complain of it nearly in the same way, you must give up the remedy. On some individuals it acts as a soporific; it disturbs the intellectual faculties, and scarcely any person whilst under its influence, is capable of going through the ordinary routine of occupation. Some stomachs are very much alive to it, and twenty drops will produce nausea, a larger quantity will cause an inclination to syncope, and this is sometimes one of its most distressing effects, the swooning continuing long, and being often repeated, the languor too is very overpowering, whilst cold clammy sweats burst forth.

The urinary secretion often exhibits some very striking changes under the administration of digitalis. When it has been very high coloured, has had a thick deposit, and has been scanty in quantity, it has obtained a more natural colour and consistency, and has been increased in quantity. Some men, bolder than others, have continued its use, even when vomitting has taken place, and they think that the viscid mucus that has been thrown up, has relieved the chest, but surely under such an impression the milder emetics should be preferred. The effect upon the appetite in the intervals of nausea is sometimes very remarkable; the desire and craving for food, when there was previously distaste, are very striking.

The circumstance to which your attention is more particularly to be directed, is the agency of the remedy upon the pulse. You will most generally find two results, either a marked reduction in its frequency, or, on the other hand, an extreme irregularity.

Instead of a quick, irritable pulse, betokening the state of excitement of the vascular system, there will speedily be produced a slow, steady, uniform pulsation, occasionally it will seem to be fuller than before, but the slighest bodily movement will counteract its influence, and, in most instances, very little exercise will accelerate it. If it fall below the standard of fifty beats in the minute you will most generally find that the head and the stomach exhibit some signs of distress, but this is much more observable in phthisis than in dropsy, in which latter disease the excitability of the whole system is very much less. If irregularity of pulse be the *sequela*, it is marked by a few pulsations being performed with exceeding rapidity, and then a return to the previous condition and rhythm, but, occasionally, a complete stroke is intermitted. In asthmatic affections, in dyspnœa, it is very serviceable, whether they be dependant upon chronic or active affections of the lungs; but it will not control or cure the disease effectually, and, in most states of disease in those organs, it will alleviate the more formidable symptoms, and aid in prolonging life, and in rendering the last hours of life more endurable.

In the affections of the uterine system which usher in and accompany phthisis, digitalis is highly serviceable; and, indeed, its influence upon the periodical evacuation, renders it a most valuable emmenagogue when properly employed, namely, in those states which are marked by acceleration of the pulse, and a morbid tension of the vascular system. It is observed, that most of the young females who go out to India, although they have been remarkably healthy with respect to the periodic evacuation, rarely, if ever, perform that function more than once during the whole of the voyage, however long it may be protracted; and on their arrival they generally have to encounter a train of morbid sensations consequent upon the effort of nature to resume her wonted condition. Most of the symptoms would be considered inflammatory; but it is merely constitutional excitement, the result of the disturbance the system has undergone, and the energies which the vis medicatrix naturæ is exerting to recover her lost balance. In such a state, digitalis is to be employed. If undue bleeding take place, it only protracts, to a very late period, the re-establishment of the menstruation, and there is a severe struggle, marked by a morbid condition of the membrane lining the uterus; and there is sometimes formed a false, or adventitious membrane, which is with great difficulty detached and dislodged, occasioning very considerable pain; besides which, so long as it remains within the womb, it forms a mechanical obstruction, irritating its vessels and its mouth. This membrane is large enough to cover the top of the finger, and corresponds in shape with the fundus uteri.

It is from the peculiar effect upon the heart and arteries, that digitalis has so justly acquired great esteem in the cure of some of the stages of insanity. We have to thank Dr. Hallaran for some very interesting observations on its powers. Wherever there is great vascular excitement, and a rapid pulse, of course premising that there is no disease of the heart, the extraordinary influence it possesses renders it a most valuable therapeutic agent. That practical physician, however, recommends previous depletion, and the evacuation of the bowels by calomel, as rendering it more effectual. To this there cannot, under certain circumstances, be any objection; but let me again raise my warning voice against any unnecessary use of the lancet when you are about to employ digitalis. In the greater number of instances, I can assure you, all you wish may be obtained without the venesection, though cases will occur in which it may be had recourse to.

In epilepsy, where it is dependant upon arterial acceleration, produced by various causes, you will find digitalis has been successfully administered. Dr. Currie recommended it, and since that period it has been occasionally tried with good effect. In the American "Medical Recorder," and in the "London Medical and Physical Journal," you will find cases illustrative of its powers. It has also been used in delirium tremens, in hydrocephalus, and in moderate doses has been tried at as early as two years of age in hooping-cough. Dr. Uwins gave it to a child two years old, three times a day, for about a week, in the dose of a drop, for tabes mesenterica. That gentleman has furnished us with a very valuable essay on the medical effects of digitalis, which you may peruse with much instruction in the "London Medical and Physical Journal" for 1818.

It has been questioned whether digitalis should be given in the treatment of disease occurring during pregnancy. Mr. Wilkinson, of Aspatria, has, in a volume of The Lancet, mentioned the case of a woman who had been under the influence of the remedy, who was delivered of a living child at the proper period, whose natural bulk of body was considerably diminished, and whose skin was shrivelled and wrinkled all over; and other persons have remarked somewhat similar effects. This, however, should not prevent its administration where an undoubted and active pulmonic disease demands it, but unless there be the marked signs, other remedies should be preferred. Consumption is very generally suspended during the period of utero gestation, even in stages of the greatest danger.

LECTURES
ON THE
PHYSIOLOGY OF THE NERVOUS SYSTEM,

DELIVERED IN 1836, IN THE COLLEGE OF FRANCE.

By M. MAGENDIE.

Lecture XXIV.

Sensibility (*concluded*):—*What portion of the nervous centres is really endowed therewith. Sensibility evinced by the dura mater of some animals. None in large portions of that of the rabbit. None at the surface, or in some of the more central parts, of its brain. High sensibility of its optic thalami; and of its cerebellum and spinal marrow. Experiments on the sensibility of the spinal marrow of a dog. Close relation between sensibility and electricity. Proof of the different properties of the same organ in different animals.*

Gentlemen:—Here is the little animal on which we performed the experiment of dividing the anterior and posterior roots of the nerves attached to the spinal marrow. In my last lecture I told you that this experiment could be performed on young dogs, without any injury to the columns of the spinal marrow, and at the same time endeavoured to show you—to demonstrate in your presence—the agents of sensibility throughout the body.

Having advanced thus far, it next remains for us to examine the cerebro-spinal axis, with the object of determining what portion of the central nervous system exhibits marks of sensibility. Laying down beforehand, as a general rule, that all its divisions are not endowed with sensibility, let us proceed to examine what parts are sensible, and what parts are deprived of that property.

Experience abundantly proves the error into which the earlier physiologists fell, when they believed that sensibility was concentrated in a particular portion or compartment of the brain, although certain parts of the nervous centres seem entirely destitute of the power of feeling. Thus, for example, when we examine the upper surface of the brain, we find no trace of the mass of convolutions (throughout their whole extent,) being sensible. Besides, we have already shown you that several of the nerves, such as the olfactory, the optic, the auditory nerves, &c., are deprived of this faculty; in short, we find little or no marks of sensibility before we arrive at the central parts, such as the corpora striata, the optic thalami, and the crura cerebri. Hence it becomes a matter of necessity to determine, in a strict manner, what portion of the nervous centres is really endowed with sensibility, and to obtain this result we evidently can employ no other means than experiment on the living animal. We shall, therefore, commence, at once, a series of experiments with this view; but I must tell you, before we commence them, that in some animals the dura mater possesses a certain degree of sensibility, while in others the same membrane seems incapable of feeling; it is necessary to remember this distinction, in order that we may not confound results, and apply to the brain a degree of sensibility which belongs to its enveloping membrane. The dura mater has already given rise to several errors in physiology; thus, Haller taught that it was completely insensible, while several other physiologists of his day sustained a contrary doctrine, an additional reason for our being more careful in the appreciation of whatever results we may obtain.

To determine the degree of sensibility possessed by the brain in general, or by any of its parts, it is evident that we must commence by exposing its substance; I therefore proceed, as you see, to remove a portion of the skull of this young rabbit. The dura mater is now exposed; I touch it in different places; I even prick the membrane with a sharp-pointed instrument, but the animal gives no sign, either by gesture or movement, that it suffers the least pain. I now divide the fibrous membrane of the brain to some extent, taking especial care not to injure the nervous substance. It is true the little animal gives some signs of impatience by struggling, but these, probably, depend on the efforts it is naturally induced to make to escape from the hands of the assistant, who confines it to a fixed position on the table.

I now employ a strong stimulant, and let fall several drops of concentrated nitric acid on the surface of the dura mater, and that part of the cerebral convolutions which is already exposed; the tissues are cauterised by the strength of the acid, but, as you must remark, the animal before us gives no sign of having experienced any painful or even disagreeable impression.

Our next step is to divide the dura mater, in its whole length; and, in doing so, I find that certain parts of that membrane, especially in the neighbourhood of the sinuses, seem endowed with sensibility. Let us now examine the condition of the more central organs. Does the brain become more sensible as we approach its interior? Experience alone can answer. Here are the ventricles exposed: I touch their surface; the animal does not stir: I go further, and plunge the probe, though not deeply, into the substance of the optic thalami on the left side; the results are the same; the rabbit is free from suffering. I now irritate

and wound the floor of the ventricles, without producing any more marked effects.

The experiments just made would seem to indicate the presence of little or no sensibility in the more central parts of the brain; however, for the sake of greater accuracy, I shall remove the substance which covers the lateral ventricles, and expose the thalami and corpora striata completely. With respect to the latter bodies you should remember that they are composed of a mixture of grey and white substances; the surface of the corpus striatum, formed almost exclusively of a layer of grey cerebral matter, exhibits little trace of sensibility, while, on the contrary, the striæ of white matter, from which this part of the brain receives its name, seem endowed with sensibility in a much higher degree. This you shall now see.

When I irritate the superficial portion of the corpora striata, the animal, as you observe, gives no sign of feeling; it remains perfectly quiet and insensible; but when I carry the probe more deeply into its substance, and wound some of the white bands which traverse it, the animal immediately executes certain movements of progression on the table. The central parts of the optic thalami exhibit an equal share of sensibility. When they are irritated with the probe the rabbit at once shows, by its struggles, that it experiences a sensation of pain. Hence you see that the thalami possess a higher degree of sensibility than the other central parts of the brain; indeed, I might say, they are the only parts which we have as yet examined that are sensible, for irritation of the corpora striata produces rather a desire to move forwards than a sensation of pain. When the deep-seated parts of the optic thalami are wounded, a tendency to movement is produced, but in a different sense; the animal, as you shall presently see, being seized with an invincible desire of rotation.

Irritation, or destruction, of the corpus callosum, of the anterior and posterior commissures, or of the septum lucidum, does not give rise to any development of sensibility; the animal remains immoveable while those parts are being destroyed; we may hence consider them as being altogether deprived of sensibility. Let us now turn to the cerebellum. The animal is excessively weakened by the various experiments which we have successively performed on it, yet when the superior portions of the cerebellum are wounded the rabbit, as you see, still continues to evince marks of acute feeling; the base of the cerebellum, on the contrary, enjoys a much less degree of sensibility. When we examine the base of the brain, we find an absence of sensibility in the infundibulum, and in the commissure of the optic nerves, while the crura cerebri, and particularly the pons varolii, are the seats of sensibility in a very marked degree.

These are not mere assertions which you are at liberty to receive or reject, as you may think proper; each proposition is demonstrated by the results of the experiments I now make before you. The poor animal seems to suffer a great deal; I shall, therefore, divide the medulla oblongata, and put an end to its torments; but first let me demonstrate the sensibility of the spinal marrow. For this purpose I expose a portion of the medulla by removing a couple of inches of the posterior wall of the spinal column. I now irritate with my probe the medullary substance, and the animal immediately evinces its sensibility by violent movements of the posterior extremities; indeed, the whole medulla spinalis is more or less sensible; however, I should remark to you, that certain portions enjoy a higher degree of feeling than others. To demonstrate this latter proposition we must take another animal, for the one before me is too exhausted to bear any farther injury.

Here is a young dog, which has been selected for a second experiment; I now lay bare the spinal marrow in the neighbourhood of the dorso-lumbar region; I divide the nervous column completely across, and the animal, as you see, is immediately paralysed in its lower extremities; when that portion of the spinal marrow which is placed below the point of division, is irritated or wounded with the probe, the animal exhibits no sign of suffering. Long continued irritation merely produces some irregular movements in the extremities, of which the dog seems entirely unconscious. Let us now see the result of irritation of the upper part of the spinal marrow. Here, Gentlemen, injury of the nervous substance immediately gives rise to an acceleration of the respiration, and to certain demonstrations, indicating that the animal suffers pain; these latter, however, are more feeble than what would result if the lower part of the spinal marrow were injured in another animal.

I should also remark to you, that the whole surface of the spinal marrow, in front, behind, and on both sides, is much more sensitive than the central parts, which dissection shows us to be composed principally of a grey substance. You may even introduce a probe to the depth of several lines into the central portion of the spinal marrow without producing any signs of pain or suffering in the animal. The posterior surface of the medulla spinalis is endowed with a higher degree of sensibility than the anterior surface. This, indeed, you might have concluded, *à priori*, and is in harmony with the anatomical fact of its giving attachment to sensitive roots. The phenomena exhibited by the nervous system, when in action, have often been compared

with those of the electric and galvanic fluids. There are, certainly, many points of analogy, but without pushing the comparison too far, or giving way to exaggeration, I may affirm, that the result of the various experiments which I have made on the spinal marrow, proves that sensibility, at least, is connected with this portion of the nervous system, exactly in the same manner as the electric fluid is connected with the metallic conductors which are destined to transmit it. Pathological anatomy daily furnishes us opportunities of observing facts which fully confirm the experiments we have just made on living animals. Thus, for example, you may see a patient in my female ward who labours under complete paralysis, both of movement and sensibility, of the lower half of the body. The annihilation of these two functions is gradually ascending to the diaphragm, and when the woman dies we are almost certain of finding some organic lesion comprising both sides of the spinal marrow, near the end of the dorsal region.

To sum up what I have said touching sensibility, I shall remark that it is impossible to indicate a single point of the brain which is the exclusive seat of this faculty: it is distributed, on the contrary, to a great number of different parts, and without the assistance of experiment on the living animal we never could have been able to determine in anything approaching an exact manner what parts are endowed with sensibility, what parts deprived of it. You saw, yourselves, the marked difference between the anterior and posterior divisions of the brain in this respect, a difference which analogy or induction could never have led us to conclude.

[Here M. Magendie interrupted the thread of his discourse, to show the pupils the spinal marrow of the young dog on which he had practised the division of the anterior and posterior nervous roots during the last lecture. He directed attention to a species of furrow, or depression, which exists along the sides of the spinal marrow, divides the anterior from the posterior roots, and thus renders it more easy for the operator to destroy either set of roots separately.]

I would conclude here what I have to say on the nerves of sensibility (continued the Professor) if the time fixed for the conclusion of the session were not so near at hand; but, as I have only one more lecture to deliver, I shall add a few observations which, although not immediately connected with my present subject, are worthy of fixing your attention.

One of the most important and interesting points which the physiologist is called on to determine may be resumed in the following question:—Do the same organs, examined in the different series of animals, present the same properties—serve as instruments of the same functions? Anatomy, it is true, furnishes data of great value for the solution of this question; however, it must be confessed, that it rather points out the way in which the problem should be investigated than supplies results of a positive nature. The question I have just put has not been followed up in the only way calculated to obtain a definitive answer; it would, therefore, be at once a curious and a profitable study to endeavour to determine by experiment the comparative properties of the different nervous systems in the series of animal creation. To give an example illustrative of what I mean; the optic nerve in birds is evidently endowed with a well-marked share of sensibility, while in mammalia, as you have seen, it exhibits little or no trace of this property, and this difference becomes much more striking when we extend our researches from the nervous trunks to the optic thalami. This dissimilarity is not confined to the organ of vision; it is equally observable in several other organs; but let us pass at once, and without further discussion, to experiment.

[Here M. Magendie produced a duck which had, for a considerable length of time, been affected with cataract; he was desirous, he said, to determine the nature and extent of the secondary effects of this lesion on the visual apparatus, and, if possible, the causes producing it, as compared with the effects or causes of the same disease in the tribe of mammalia. With this view he exposed the central and inferior parts of the brain.]

You may remark, as I proceed, that the cerebral lobes are just as insensible in birds as we found them to be in animals. I have removed nearly the whole of the superior part of the brain without producing any prominent marks of suffering; but our business is more particularly with the apparatus of vision. I now touch, as you see, the optic nerve with my probe, and the animal evinces, at once, the pain it suffers by struggling to get loose: this is quite the reverse of what happened when I irritated the same nerves in the rabbit and dog.

The fact which you have just witnessed is well worthy of your attention. Endeavour to retain it in your mind, for it proves, in a striking manner, the truth of my former observation, viz., that we cannot deduce, by analogy, a similarity of properties for the same organ in different animals, but should always submit our ideas to the test of experimental physiology. In my next lecture I shall enter somewhat more fully into a consideration of this point, and conclude the course by a series of experiments on the property of motion.

We have already seen and examined a general phenomenon of the nervous system, produced by the sensibility of its different parts, varying not only in different parts of the same animal, but, what is more curious, in the same part according to the different classes of animals; in the same way we shall have to study the general phenomenon of movement produced by muscular contraction, but depending primarily on the action of the cerebro-spinal nervous system. The phenomena of locomotion—of the various efforts during which an animal develops, by the sole effect of its volition, an instantaneous force, astonishing in degree, and in the variety of its applications—present a most interesting study to the philosophic mind. The phenomena of movement are palpably reproducible at will; yet we are unable to explain them, unless we adopt the theory of electricity proposed by certain writers; but even this is only a metaphorical expression. Motion, the result of muscular contractility, has never ceased to occupy the thoughts and meditations of the physiologist, yet we remain ignorant of the causes and mechanism of a phenomenon which, like thought, seems destined to escape analysis. In my next, my last lecture, I propose to examine those points of the nervous system which seem to exercise the greatest influence over the development of motion.

Lecture XXV.

Conclusion of the Course.

Movement:—*The extraordinary character of its phenomena. Experiments on a rabbit, to determine what portion of the nervous centres exerts the greatest influence over movement. Division and removal of the corpora striata, and of the optic thalami. Application of some of the facts discovered, to human pathology. Forward, rotatory, and downward motion. Backward motion produced by lesion of the cerebellum. Possible relation between the crura cerebelli and the direction of the eye-ball. Retrograde flight of birds when wounded in the cerebellum. Does paralysis in man, opposite to the seat of effusion, depend on the decussation of the pyramidal bodies? Vertical and horizontal ophthalmia. Slight medullary connection between the brain and spinal marrow which will suffice for the functions of life. Slight motility and sensibility even after their entire separation.*

Gentlemen:—Towards the conclusion of my last lecture, I mentioned that the nervous system of birds is endowed with a degree of sensibility which is not observed in other classes of animals, and I demonstrated the truth of this assertion, which otherwise might have appeared hazardous, by experiment. I shall say no more on the subject of sensibility, though a number of interesting points yet remain to be examined; the short space of time which we have to spare being scarcely sufficient for the consideration of movement.

The phenomena of motion afford a subject of study which is little, if any thing, inferior to those which we have already examined. Indeed, when we reflect on the precision and harmony which preside over the development of this phenomenon; the prodigious intelligence, if I may use this latter expression, which is revealed during the most insignificant of its manifestations, we are tempted to place it on a level with the phenomena of what is called mind, or, at least, to consider it as a work not less admirable in its nature; for what is more beautiful than the sudden force developed in such an infinite variety of change by the mere volition of an animal? Did the nature of our present course permit me to examine this subject in any other manner than as an experimental physiologist, I might indulge in speculations of the most elevated and noble nature; but we must confine our attention to what is positive, and appreciable by the senses. Let us commence, then, without loss of time, with an experiment.

Here is a young rabbit, from which I have removed the greater part of the brain. Nothing remains, as you see, in the cavity of the skull, except the corpora striata and the optic thalami. The object of the experiment is to determine what portion of the nervous centres exercises the greatest influence over movement; to show you how certain parts govern particular motions, such as that of rotation, for example, movement backwards, lateral motion, &c. &c. The animal does not exhibit any sign of suffering, or of sensibility; it remains without motion on the table; when I pinch the animal's tail, however, it utters an acute cry. The whole of the lateral hemispheres have now been removed, and you will soon have an opportunity of witnessing the effects which result from this lesion of the nervous centres. I now divide the corpora striata, and the rabbit, as you see, makes a violent effort to rush forwards; but when I remove a portion of one of those bodies the animal shows a tendency to turn exclusively towards the injured side.

This effect, I should remark to you, is contrary to what we generally observe, for removal of a corpus striatum almost always produces rotation of the body towards the side which remains uninjured. On cutting through the other corpus striatum, the animal ceases to turn round; the movement of rotation has now been suddenly suspended. This is an important phenomenon, and the deductions which we might draw from them are confirmed by several pathological facts, and especially by what occurs in certain cases of apoplexy. Lesion of the optic thalami produces nearly similar effects to those you have just witnessed. When I destroy

one of the thalami, the animal, as you see, falls down upon that side; both the thalami nervorum opticorum are now removed; the rabbit lies motionless, and is unable to preserve the upright posture.

I shall now remove the optic thalami, alone, from another rabbit, and, unless the experiment fail, it will manifest a disposition to run constantly forwards until it falls down. [This experiment was performed, and produced the result announced by M. MAGENDIE.]

I shall now endeavour to produce rotation towards the right side, by removing the left optic thalamus in another rabbit. The experiment, however, has failed, in consequence of an accident which frequently occurs in operations of this kind; the struggles of the animal have forced the scalpel much farther than I intended it should penetrate towards the base of the brain, and the consequence has been instantaneous death. Let us try another; perhaps we may be more fortunate this time. No; we are not much more so, I am sorry to say; the section of the optic thalamus has given rise to considerable hæmorrhage; however, the animal evinces an evident tendency to rotate the body in the direction I expected.

To review, then, in a few words, the results of the experiments which have been performed. Movement, in a forward direction, is produced by removal of the cerebral hemispheres, as far down as the level of the floor of the lateral ventricles. Rotation in an opposite direction, and inclination of the whole body, result when one of the corpora striata is destroyed separately. The same phenomena, terminating in a fall on the side, are witnessed when we remove one of the optic thalami, and the animal is incapable of standing on its legs when both these latter bodies have been removed. Finally, inclination towards one side, and falling, result from destruction of one of the optic tubercles; while, as you saw, the animal tumbles instantaneously if both tubercles be removed.

I told you before that the phenomena which are observed in the human subject, in cases of cerebral hæmorrhage, present considerable analogy with those which I have now enumerated; I allude only to such lesions of movement as result in the side of the body opposite to that in which the effusion of blood has taken place. There is, however, this important difference, that in man the phenomena of movement are totally suspended under the influence of cerebral hæmorrhage, while in other animals certain motions of the limbs continue to exist, even when both corpora striata have been totally removed.

Before I proceed with my experiments on the cerebrum, let me direct your attention to a fact which will not detain us long. I now injure the cerebellum of this rabbit, and, instead of developing any tendency towards lateral or forward motion, the animal is seized with violent convulsions, and the head thrown backwards by a kind of tetanic contraction.

But to return to the brain. I mentioned, just now, that when one of the corpora striata is injured, the animal turns its body towards that side. The experiment which I made to demonstrate this fact having, in part, failed, I shall now repeat it; however, you saw enough to convince yourselves that, with the exception of the striated bodies, the other parts of the brain exercise no great influence over muscular motions. I have exposed the brain of the little animal which is now before me, and plunge a small metallic rod into the substance of one of the striated bodies; the rabbit immediately commences, as you see, to rotate its body nearly completely round; and had the lesion been confined to that portion of the brain which is entirely composed of what anatomists call "the corpus callosum," the effects would have been very insignificant. The cerebral hemispheres may be compressed, irritated, or even destroyed to a considerable extent, without giving rise to any remarkable symptoms; while, on the contrary, the least injury of the corpora striata, or optic thalami, is followed by a disturbance of motility of the most striking nature. You have an excellent example of this before you; see how the animal in vain opposes its volition to the tendency produced by the lesion which we have inflicted on the corpora striata; it makes an effort to go forwards, but every step is converted into a lateral movement, in spite of the animal's will. [M. MAGENDIE dwelt at some length upon this point, and concluded by remarking, that the explanation of lateral motion, and of rotation, was entirely due to experimental physiology.]

Having thus examined the influence which the cerebrum exercises over movement, let us next endeavour to ascertain the instinctive principle which directs and governs motion in a retrograde direction. The portion of the central nervous system in which this instinct resides is unquestionably the cerebellum; we can operate on this latter organ in various directions, but the easiest and most commodious is to penetrate through the occipital foramen.

[With this object, M. MAGENDIE seized a young rabbit, and endeavoured to destroy a portion of the cerebellum, by forcing a sharp-pointed instrument through the great foramen at the base of the skull. A quantity of cephalo-rachidien fluid immediately escaped through the aperture, but the experiment was not followed by the results which the Professor expected; the animal rolled itself in a convulsive manner on the

table, a phenomenon which M. MAGENDIE attributed to his having accidentally divided one of the crura cerebelli. The rabbit, however, constantly kept its legs in a position which indicated an effort towards a retrograde motion. A third rabbit was now placed on the operating table, and M. MAGENDIE again passed a metallic probe into the substance of the cerebellum, remarking that the animal would live for a considerable time, notwithstanding the presence of a foreign body in the brain, for the simple reason that the instrument prevented the occurrence of cerebral hæmorrhage. The same phenomenon is sometimes witnessed in cases of penetrating wounds of the cranium in the human subject.]

I now withdraw the instrument (continued the Professor), and you see how rapidly effusion takes place into the cerebral substance. But to return to our original experiment, the object of which is to ascertain the instinctive source of retrograde movements. I now wound the cerebellum, in a fourth rabbit, and, as you must observe this time, the experiment is crowned with complete success; the lesion of the cerebellum has produced, in this animal, a very strong tendency to move backwards. See how it is a prey to the influence of two different forces; one, that of volition, naturally excites the animal forwards; but another force has created an irresistible tendency to retrograde. The animal is unable to advance one foot before the other; he clings, as it were, to the table, in order that he may offer some resistance to the force which impels him backwards, in spite of himself, and finally, as you see, unable to conquer the tendency, he throws himself down, now on one side, now on another. These different movements demonstrate that I have injured the central portion of the cerebellum.

As to the phenomena which indicate a lesion of other parts of the organ, they are various and less certain. In some cases the animal exhibits a very great irregularity in its movements; in other cases it lies down on one or other side indifferently; while in several others a retrograde motion is the immediate result. When one of the crura cerebelli is divided, the animal commences rolling over and over on the ground; and this motion is executed with more or less rapidity in proportion as the peduncle of the cerebellum has been divided more or less near its attachment to the organ. We can put a stop to this rotation in a recumbent posture by dividing the opposite crus cerebelli. The animal ceases to roll over and over, although respiration continues. I have now divided the second peduncle, but, unfortunately, effusion has taken place to such an extent as to render it impossible to draw any conclusion from the experiments.

I should not omit directing your attention to a fact connected with the question which now occupies us, although it is by no means easy to explain it. When we operate on an animal in the way I have just done we are struck with the singular appearance of the eyes, which are forcibly turned in opposite directions; the eye corresponding with the divided peduncle of the cerebellum is strongly directed upwards, towards the forehead, while the other eye is as strongly turned downwards: I confess I do not see the reason of this difference; the phenomenon, however, is well worthy our attention, for what relation exists between the crura cerebelli and the direction of the eyeball?

[M. MAGENDIE now succeeded in determining an excessively rapid movement of rotation in another rabbit; he then compelled an animal to turn constantly towards the right, or constantly towards the left side, and, finally, he put an end to this lateral motion in two rabbits by dividing both crura cerebelli.]

We shall now see the same phenomena in a still more decisive manner in the bird tribe; when you wound the cerebellum in this class of animals the individual exhibits the curious anomaly of flying backwards. I have frequently seen this result produced by a lesion of the cerebellum similar to that which I shall now proceed to effect. I once had a pigeon which lived for a considerable length of time with a metallic wire fixed in the centre of its cerebellum, and on every occasion that the bird attempted flying I had an opportunity of witnessing the remarkable fact just mentioned.

[Here M. MAGENDIE had a pigeon placed on the table, and after having forced a large pin into the substance of the cerebellum he endeavoured to make the bird fly. The tendency towards a retrograde motion was very evident, but still more clearly manifested when the bird attempted to walk on the table.]

You see, Gentlemen, (said the Professor) how the animal before us, while it evinces a wish to get forward, is carried in a backward direction by an internal impulse which it in vain struggles to overcome: I have introduced a second pin into the cerebellum, not far from the first one, and the march of the pigeon, backwards, is still more rapid and regular. We possess many examples in the history of surgery of persons who evinced a well-marked tendency to retrograde in consequence of some severe injury inflicted on the cerebellum; at present I can only remind you of these facts, into the details of

which I am prevented from entering through want of time.

The experiments which you have just witnessed are calculated to throw considerable light on many of the phenomena observed in cases of apoplexy or cerebral hæmorrhage. You have not forgotten, without doubt, the grand question of which I have spoken in a former part of this course, viz., does the fact of paralysis, occupying the side of the body opposite the seat of effusion in the brain, depend on the decussation of the pyramidal bodies? I think not. To illustrate this interesting point of pathology I shall now divide the corpora pyramidalia; this is done, and yet, as you see, the motility of the animal has not undergone the least modification. I now divide one of the pyramids without producing paralysis of the members of the opposite side of the body. The fifth pair of nerves, as you all know, is connected with the lateral parietes of the fourth ventricle, and, lower down, with the medulla oblongata; now, when the fifth pair of nerves is divided at its point of separation from the cerebral substance, we produce the various phenomena which have been so often described in the present course. When the nerve is divided nearer its origin these phenomena are not observed.

A curious circumstance relative to this experiment, which I had forgotten to mention, is the following:—The secondary effects of division of the fifth pair, on inflammation of the eyes, manifest themselves with more or less rapidity according as the nerve is divided more or less near its origin; and, again, when the section of the nerve has been operated towards the orbit, the inflamed vessels take an horizontal direction, whereas they run vertically across the globe of the eye when the nerve is divided near its origin. These facts, Gentlemen, shew that the distinction which some ophthalmologists make between vertical and horizontal ophthalmia is not altogether so imaginary as their opponents would pretend; unfortunately the animal, on which I have just operated, is in a dying state, otherwise you would have had an opportunity of seeing for yourselves the phenomena just mentioned.

Here, however, in my right hand, is a little animal which continues to live, and respires with sufficient energy, although one half of the medulla oblongata has been divided across, and consequently the spinal marrow communicates with the brain, through the medium of a thin layer of nervous substance. The continuous portion, as you see, is very trifling, yet the rabbit is alive. The junction of the brain with the spinal marrow is a condition indispensable for the support of existence; but I again repeat, even when this continuity is represented by an insignificant layer of nervous substance, life is possible. I remember having examined the body of an old man, seventy-eight years of age, and finding the spinal marrow nearly destroyed, in a length of from six to eight inches. The posterior portion was represented by a slight medullary layer of nervous substance, which presented a line and a half in breadth and half a line in thickness. Such was the state in which we found the spinal marrow, yet the individual accomplished most of the acts of animal life without difficulty: he ate well, was able to walk about, and sometimes even paid a visit to the fair sex.

I shall now separate completely the spinal marrow from the brain in this rabbit; the section has been performed near the base of the skull, and the animal, as you see, continues to give some signs of motility and sensibility. This depends on the integrity of the spinal marrow below the divided point, for when I compress the medulla spinalis I put an end to the motion, and the animal is no longer capable of feeling. Similar phenomena may be observed in this other rabbit, whose head I have suddenly separated from its body.

[Finally, M. MAGENDIE transfixed the middle portion of the cerebellum, in a ninth rabbit, wishing to reproduce the phenomenon of retrograde motion, but the injury was immediately followed by effusion of blood and convulsions.]

Here, Gentlemen, I must close this course. I should have desired to recapitulate the results of the different experiments which you have seen, but I find that time presses; besides, I feel confident that they are present in your minds. The assiduity with which you have attended my lectures, and the attention you have been pleased to bestow on what has fallen from me, are sufficient guarantees that you knew the spirit in which this course was conceived, its object, and its end. My constant effort has been, as it always will be, to rescue this sublime and admirable science from the vague and barren domain of hypothesis, under which it has been thrown for ages, by ignorant or credulous minds. I have endeavoured not only to lay its mysteries open to you, but also to employ it in facilitating the discovery of those eternal truths which hitherto we have been content with admiring, without seeking to explain.

ON IODINE
AS A
REMEDY FOR GLANDERS.

By EDWARD THOMPSON, Esq. *Whitehaven, Member of the Royal College of Surgeons in London, &c. &c.*

"Sunt tamen quædam remedia propria adversùs quædam venena."

I AM induced, in consequence of reading in THE LANCET, an extract from the *Dublin Journal*, of a fatal case of glanders in man, by Mr. Brown, to forward for publication the following remarks:—

About thirteen years ago, Dr. Copland drew the attention of the profession to the appearance of glanders in man, and referred to some cases which had been detailed in *Rust's Journal*. Subsequently to this, Dr. Elliotson published his very important paper, in the *Med. Chirurgical Transactions*, proving the communicability of glanders from the horse to the human subject. These notices gave an interest to the inquiry, greater than when the affection was merely considered as a disease of the lower animals, and they were followed up by several important cases, occurring both here and abroad. Notwithstanding the interest excited, it is to be regretted that nothing which is practically useful in the treatment of this fatal and loathsome disease has hitherto been advanced; every acute case, that has been recorded, having ended in death, after much suffering and distress. The consideration, therefore, of the disease has become a vital question to the medical inquirer, not only on account of the singularity of the disorder, but from its having resisted every remedy which has been applied to it, either to mitigate the infection or cure it. Under these circumstances the proposal of any mean, although it may be supported but by a single fact, is worthy of attention, and I think that I should be acting wrongly not to promulgate the following experiment.

The disease has been viewed by most writers, as an affection of the schneiderian membrane, accompanied by enlargement of the glands in the neighbourhood, and an extension of the complaint, by continuity, to the lungs. In most cases, too, communicated by contagion, tubercles in various parts characterise the complaint, and are considered by Dupuy as constituting the disease. The glandular implication and disordered condition of the absorbents, along with the frequent appearance of tuberculous matter, in this affection, led me to think, that iodine might be productive of benefit, and the result, so far as a single instance of success goes, gives proof of its power in this untractable and fatal disease, the animal upon which the experiment was tried having perfectly recovered. Having had no opportunity of conversing with veterinary surgeons, the farther trial of the remedy I have not had means of recommending, and never having seen a case in the human subject, of course my experience is but small, and by some may be thought unsatisfactory. The value of the remedy, however, will be tested by individuals whose means of trial are superior to my own, and whose peculiar province it is to attend to disease in the lower animals, as it is amongst these that the drug can be extensively employed, and a series of experiments can be instituted, sufficiently numerous to prove the efficacy, or the inutility, of this important medicine.

The physiological differences which exist between the lower animals and man, militate against the accurate investigation of the action of medicines, as applicable to diseases of apparently similar nature, generally: but in a transmitted disease, the product of morbid poison, exciting, in the two, similar symptoms, when inoculated, and having an affinity to similar tissues in both, a remedy that has displayed a power in one, may be expected to evince a like power in the other, under favourable circumstances for application. "Le traitement des maladies repose principalement sur la connaissance de leur siége et de leur nature, mais il reçoit souvent d' importantes modifications de la consideration de leurs causes, marche, durée, etc. Ce ne sera toutefois que lorsque la nature des maladies nous sera connue, que nous pourrons en exposer la thérapeutique."

There are some who have doubted the identity of the two diseases; but I think that an accurate examination of the phenomena exhibited in the disease as it occurs in the horse, and in man, as detailed by unprejudiced writers, is sufficiently convincing of the similarity of the two affections, particularly as experiment has proved that glanders may be excited in the horse by inoculation of matter taken from an infected man. The symptoms certainly differ in cases which are the product of contagion simply, and in those arising from the application of the contagious matter by inoculation. In the instances related by Drs. Berra and Fenelli in the *Antologia Medica*, for September, 1824, and by Dr. Alexander and Mr. Brown in *Hufeland's* and the *Dublin Journals* (the last writer, by-the-by, is wrong in supposing his case to be the first published one in which the symptoms of glanders were produced by simple contagion), the disease assumed a peculiarity in its march, somewhat different from that arising from inoculation; yet they are but grades of one affection, accompanied in some of them by a fever of a pestilential character, which there is little doubt modifies, occasionally, the disease. In the cases related by the Italian physicians, the peculiar fever modified the

complaint, so as to make the diagnosis somewhat difficult; but the identity was eventually fully established on indisputable foundation.

Such considerations lead me to hope, that a farther trial of iodine will be found efficacious in certain forms of the disease arising in man, as it has proved so effective in one of the worst forms of the affection in one of the lower animals: but the investigation of its properties in subduing the fatal progress of glanders, will require close and accurate application, and an attention as to quantity, commensurate with the nature and violence of the attack. From the singular effect elicited in the experiment I am about to mention, I should be inclined to place more faith in iodine than in any other medicine yet employed; but I would suggest the necessity of giving it in large and repeated doses, and to persevere in its use until its action is fully displayed.

The horse, the property of my brother-in-law, was seized with what was pronounced to be glanders by the farriers who attended it, several weeks before iodine was recommended. The disease was then in an advanced stage, the horse having ulcerations of the nostrils, so far as could be observed, particularly in one, and enlargement of the glands under the jaws. The various means employed in such affections, had been resorted to, without effect, and the animal, getting so weak as to be scarcely able to stand, was recommended to be shot. It was at this advanced period that I, by chance, saw it, and thinking it a good opportunity to try the power of iodine, I requested the groom to administer 150 drops of the *strong* tincture, three or four times a day, in water. The iodine was given regularly for the space of six weeks. Not fewer than 450 drops, and frequently five or six hundred, were exhibited daily. In a few days the benefit of the drug was evidenced, and at the end of seven weeks the horse was nearly well. The animal is, at present, the property of another person, and is considered by him to be one of the best in his stable. Four years have elapsed since the horse was affected; it is now perfectly well, and there has been no return of the complaint.

It may be asked, Was the horse really glandered? Of this there does not admit a doubt. The two farriers who attended it, and others who pretended to a knowledge of diseases of horses, were decided as to the nature of the disorder; and certainly if the symptoms laid down by Youatt, and others, can be depended on, the animal had confirmed glanders. Bloody viscid sanies flowed down and glued the nostrils, and in the left one the membrane was studded with chancerous ulcerations, as far as the eye could reach. The glands under the throat were greatly enlarged, and the animal was attenuated and weak. The least motion affected its breath, and from the rapid progress of the affection there was no expectation of the brute living longer than a few weeks. The intractable nature of the affection led to the proposal of the animal being destroyed, therefore the case for experiment could not be considered as the very best for trial; yet the animal is a living instance of recovery from this dangerous affection, and as no other drug was given during the exhibition of iodine, the action of the medicine was not influenced by the addition of any other. I am not so sanguine as to expect that iodine will be found to be a specific in the disease, yet as it has hitherto been exhibited in a mode to insure its effect, I think, from the successful proof of its power related above, that it deserves attention, and I cannot but express a hope that the farther trial of this active medicine (the properties of which require yet more extensive investigation) will be attended with a continuance of success, shown in man.

Since writing the above hasty observations, I find that Dr. Elliotson, in a case of chronic glanders in the human subject, has removed the symptoms by the injection of creosote. This application is a powerful one, and may occasionally allay pressing symptoms for a time; but I should doubt the power of all local remedies in radically curing the disease. The affection is a constitutional one, as compared with the local disorder: the latter, perhaps, may be allayed by certain applications, but the former cannot be expected to be eradicated by any local means, and will set up again (except, perhaps, in very recent cases) the diseased action—to be followed by an aggravation of every painful symptom. A great authority says, in speaking of the employment of local means merely, "No injections if you please, and, least of all, those acrimonious ones which can only torture, and hasten the termination of the affair." Creosote, in a diluted state, may clean the ulcerations, and prove beneficial, but constitutional remedies must be resorted to at the same time, or no permament effect can be expected. Iodine, from its known power of entering the blood, and pervading the whole circulating system (vide Dr. Cantus's experiments in *Jour. de Chem. Med.* xxviii.), is a mean which, I am satisfied, ought not to be lost sight of in our attempts to avert the ravages of this loathsome distemper, and, amidst our ignorance of the true nature of the disease, and its treatment, promises to become an instrument of more value than any that has been tried; but much has to be done before this can be proved: "Car on n'arrive à un résultat semblable en médecine, que par des observations nombreuses et assez rapprochées pour permettre d'etablir facilement entre les faits des comparaisons propres à les réduire à leur juste valeur, et à démêler le vérité au mi-

lieu des erreurs qui naissent continuellement de l'inexpérience de l'observateur, de l'inégalité journalière de son aptitude, de l'illusion de ses sens, et difficultés inherentes á la méthode d'exploration qu'il emploie."

CASE OF SNAKE BITE,

SUCCESSFULLY TREATED WITH OPIUM, SULPHURIC ETHER, &c.

By RICHARD COLLIER, Esq., *the Medical Officer of the Imperial Brazilian Mining Association, at Gongo Soco, in Brazil.*

On the afternoon of Saturday, May 7th, between the hours of three and four o'clock, while reclining in my study, fatigued by a close and anxious attendance of fifteen hours upon the lady of one of our mining Captains, confined for the first time, my attention was suddenly arrested by one of our negroes, named Matheus Mina, hastening towards my cottage. His face (familiar to me above all others in this extensive establishment) stamped with the deepest distress, induced me to meet him at the outward door. On inquiring into the cause of his apparent alarm, his only, but oft-repeated reply was, "Cobra, Senhor!" (Snake, sir!) Bringing him into my bed-room, myself and servant shewed him several specimens of snakes, anxiously asking him to tell us which it resembled; his answers were incoherent and unsatisfactory. In hurrying him down to the hospital I met a Brazilian, whom I besought to question him, which he did in vain, for nothing could be elicited.

On reaching the ward, wherein a bed was prepared for the poor fellow, he vomited more than a pint of black blood. Seeing him comfortably covered in bed, after some successful and earnest efforts to calm his phrensied feelings, at length I obtained from him the following facts:—he, and other blacks had been out in the woods, cutting *capim* (grass), when he felt himself slightly bitten by a snake. Endeavouring to pursue and kill it, he was prevented by a dizziness in his eyes, almost amounting, for the moment, to perfect privation of sight. The bite was in the second phalanx of the fourth toe of the right foot. The snake he called "cascavel," but this was owing to ignorance, almost all the negroes here designating every snake possessing poisonous properties, by this general name. The cascavel is the real rattle snake, so called from its happy habit of shaking its rattle before biting, thus affording time to escape from its fatal fang; and, in consequence, I have repeatedly heard it called, both by slaves and Brazilians, "Cobra muito boa" (the very good snake).

Having since seen snakes similar to that by which this black had been bitten, I have no hesitation in asserting that the snake was of the numerous species which is here called "jararáca."*

From the time of his being bitten until he reached the hospital, four hours had elapsed. On first fixing my eyes on him, his stooping posture particularly attracted attention, occasioned no doubt by his attempts to ease a poignant pain in the right inguinal glands; intense anguish was depicted in his countenance; he moaned much from racking pains pervading his limbs, particularly those of the right side; and there was great difficulty of breathing, and constant constriction round the fauces, during deglutition. Having never before seen a person poisoned by a snake, I cannot compare his symptoms with any other similar case, but I can convey a tolerable notion of him by observing that he seemed suffering, as it were, under all the severe symptoms of Asiatic cholera, when approaching the state of collapse.

I first made an opening into the poisoned part, with a small scalpel, intentionally incising a few vessels, and suffering a small stream of blood to flow for a few seconds. Into the wound thus thrown open, I poured a liberal portion of Beaufoy's concentrated chloride of lime, in its undiluted state, and then simply strapped the part up with adhesive plaster. The wound was thus washed three times during the first nine hours in the hospital, and was *never afterwards interfered with*. My object in so acting was to perfectly purify the foul fountain whence the powerful poison might possibly be still streaming into a system already sufficiently saturated. Strongly sensible of the force lent to absorption by a curtailed circulation, only a small quantity of blood was permitted to issue from the parts incised. So soon as he was placed in bed, he got a draught containing 30 drops of tincture of opium, one drachm of sulphuric ether, and two drops of essential oil of aniseed. This draught was repeated twice during the night, when he obtained nearly two hours' sleep, but, far from being refreshed, he awoke at six, A.M., with all the symptoms fearfully augmenting.

I had taken particular precaution that this case should be as private as possible, lest unnecessary alarm might be excited among our negro population; but some of the inmates of the hospital making known the circumstance to those without, the

* In the "Corografia Brazileira," by Padre Manoel Ayres de Cazal, there is a sentence regarding this snake, of which the following is a translation:—"The *jararáca*, whose species is the most numerous, is fatal; that which takes its name from its white tail is not more than a span in length, and its poison hitherto has no known antidote; the being that is bitten by it instantly falls into convulsions and bloody sweats, and dies in a short time."

knowledge of it soon spread through the entire establishment, and such numbers now rushed into the hospital, that I was obliged to station four persons at the door to prevent the entrance of any one, unless by my permission. To those who saw him now, death seemed so certain and so near in its approach, that the blacks, with whom he had been a favourite, bemoaned him most sincerely, and piercing shrieks were heard on all sides, literally lamenting the living as one who was dead; and, indeed, for myself, in gazing on the ghastly and cadaverous countenance before me, I saw nothing to inspire a single ray of hope.

I now (six o'clock) gave twenty drops of the tincture of opium, with the ether and oil, as before. At seven o'clock I repeated the same dose, and lay down in the bed which was beside his couch, watching every muscular movement. His lips were much retracted; he still severely felt the pains passing through his limbs, but he had experienced no pain, since his admission into the hospital, in the toe which was bitten. I persisted in repeating the above medicine every hour, giving at intervals a plentiful portion of port wine, and excellent chicken broth.

At eleven o'clock, A.M., I found that his sight was so far improved as to enable him to distinguish the gentleman in charge of the negroes, but only when that individual stood at the foot of the bed, so that the light might fall directly on him, otherwise he could not discern him. At twelve o'clock the draught was again repeated.

At one o'clock, P.M., the entire abdominal region rapidly rose, and was suddenly swollen to a dangerous degree. I instantly gave him four drops of the liquor ammon. fortioris, three drops of essential oil of peppermint, the like quantity of the oil of anniseed, and one drachm of sulphuric ether. In a few minutes I had the unmixed delight of seeing the abdomen slowly sinking to its original and natural size. Hope here arose, and at half-past one o'clock I gave him another drachm of sulph. ether, with one of sweet spirits of nitre, and before half an hour had elapsed a perspiration was pleasingly visible on his chest and forehead, and the rigidity of his features, for the first time, seemed relaxing into something less ghost-like. The pulse, too, became now fully perceptible to the touch, and seemed at last to acknowledge the strong stimulants sent into the system. The constant sensation of cold now deserted him, so that there was no further need of bottles of hot water for his feet; the additional blankets, too, were removed. At three, P.M., he seemed sinking a little, but a drachm of the sulph. ether, with a drop or two of essential oil, set him up again. The laudanum was omitted this time, and was not used afterwards.

It may be worth while to notice that there was no visible sign of the large quantity of opium administered in so short a time. The urine, which had been exceedingly scanty, came away now in tolerable quantities. From four, P.M. (twenty-four hours after admission), he became quite calm; all the excessive pains passed away, and he was now fully sensible to every external object; he also slept a little.

The remaining treatment was marked by nothing particular; he was supported with broths and wine negus, the bowels being kept gently open. He did not leave the hospital for a fortnight; this arose from a slight attack on his lungs. He is a most delicate subject in this respect. In the space of twelve months previous to his being bitten, he had twice nearly fallen a victim to acute pneumonia; and about two months since he had another similar attack. By the kindness of the chief commissioner he is now occupied in the easiest employment which the place presents, and I therefore hope to see him survive for some years yet, the poor fellow being additionally endeared to me in consequence of my having had him four times under my charge, during each of which he seemed beyond the reach of human succour.

It is not unworthy of notice, that on examining the poisoned part thirty hours after the patient had become an inmate of the hospital, the wound seemed to be so slight, and so clean and healthy, that it might have passed for a slight scratch with a cambric needle.

Gongo Soco, Dec. 4th, 1836.

ON THE IDENTITY,

IN NATURE, SYMPTOMS, MORBID APPEARANCES, AND CAUSES, OF

HYSTERIA AND HYDROPHOBIA.

By FRANCIS EAGLE, Esq., *Surgeon, London.*

In investigating the nature of any disease, the general character which it assumes, the peculiar locality of its seat, and the period of life at which it occurs, enable us to form (at least) a presumptive opinion, as to its cause. Some diseases are peculiar to infancy, some to puberty, others to the adult, and, lastly, to old age. To ascertain, therefore, the general laws under which diseases operate, is the first "stepping stone" to their peculiar nature. Hysteria, for example, arises most commonly between the age of puberty and that of thirty-five years. For what is this period remarkable? For the full development of the "sexual system;" it more frequently occurs in the unmarried than in the married; oftener attacks about the period of the catamenia, than at any other; is extremely uncommon in females who lead a life of prostitution; and on dis-

section the uterus and ovaria present the principal morbid appearances. Dr. Thomas, thus describes hysteria:—"The disease attacks in paroxysms, or fits; these are sometimes preceded by dejection of spirits, anxiety of mind, effusion of tears, difficulty of breathing, sickness at stomach, and palpitation at the heart; but it more usually happens that a pain is felt on the left side, about the flexure of the colon, with a sense of distention upwards, till it gets into the stomach; and removing from thence into the throat, it occasions, by its pressure, a sensation as if a ball was lodged there, which by authors has been called, globus hystericus. The disease having arrived at its height, the patient appears to be threatened with suffocation, becomes faint, and is affected with stupor and insensibility; while, at the same time, the trunk of the body is turned to and fro, the limbs are variously agitated, wild and irregular actions take place in the alternate fits of laughter, crying, and screaming; incoherent expressions are uttered, a temporary delirium prevails, and a frothy saliva is discharged from the mouth."

Dr. Sigmond, speaking of a fatal case of of hydrophobia, observes:—

"It was a very singular circumstance, that within three weeks from the death of this patient, there was admitted into the hospital a female, with symptoms so similar to those that had been exhibited by this man, and by Thomas Porter, that if the history of the symptoms had not been most carefully traced, it would have been called hydrophobia, from the bite of a rapid animal. The same dread of swallowing liquids, of the admission of cold air, accompanied by nervous twitchings, almost amounting to spasm, were strongly developed, and I have never witnessed hysteria so much resembling the fearful malady of which I have spoken, as in this young woman, who was restored to health."

As upon the identity of symptoms in hysteria and hydrophobia, most authors agree, it is unnecessary to enlarge upon this part of the subject: but to establish the fact of "identity of morbid appearances," abstract from the identity of symptoms, would be a matter of some difficulty, as hysteria is a disease which rarely proves fatal in the human subject, and when fatal, has most probably been referred to other causes, which our imperfect knowledge of pathology would easily allow: however, a great part of our diagnosis in all diseases, must depend upon accurately estimating the "identity of symptoms," for *as identity of symptoms warrants the opinion of identity of morbid appearances, so the identity of both warrants the opinion of identity of cause.*

The sympathy of the stomach with other parts of the body, in cases of injury or disease, is too well known to admit of a probability of cavil; and notwithstanding that this sympathy may be universal in some cases, especially of extensive injury, such as fracture of the extremities, concussion of the brain, wounds, &c., still, the organ with which the stomach *peculiarly* sympathizes is the uterus, as is exhibited during pregnancy, hysteria, and other diseases of that organ. One of the first symptoms of pregnancy is sickness; in a later stage, a "longing," or an inclination for food, for the most part improper and difficult of procuring; in hysteria, the very same condition of stomach is frequently present, and is always attended with more or less depraved appetite and craving for particular (generally hurtful) articles of food: in diseases of the uterus, also, irritability of stomach constitutes one of the leading symptoms of the locality of the disease, the nature of which, owing to the high gastric irritation, and, in some cases, inflammation, which prevail, is entirely lost sight of, and the effect instead of the cause is administered to.

The cause, therefore, of this sympathetic affection, is not to be attributed to pregnancy, for it exists in the hysteria of the unmarried; nor to organic disease, for it is most common in the absence of any change of structure in that organ; we must, then, seek a cause which is applicable to these very opposite conditions. Such is "irritation of the sexual system." This would appear equally clear as to the physical condition of the patients; *in the one*, hysteria occurs at or about the period of the catamenia;—*in the other*, shortly after it has ceased, and implying, in both, a congested, overloaded, or irritable state of that system.

Further, the knowledge of this sympathetic affection of the stomach, producing the globus hystericus (first pointed out, I believe, by Drs. Hall and Addison), is, in my humble opinion, one of the most important acquisitions of modern pathology, which will eventually produce a partial revolution in the practice of medicine, as applied to dyspepsia, hypochondriasis, tetanus, hydrophobia, hysteria, chorea, epilepsy, cancer, mania, and a host of other diseases, the pathology of which, in the language of Martinet, "is altogether unknown." Irritation of the "sexual system" gives rise to dyspepsia, dyspepsia to hypochondriasis, hypochondriasis to mania. The frequent failure, then, of stomachic remedies in diseases of that organ, and of cerebral remedies in mania, is not more practically true, than the reasoning which applies them is philosophically false. Previous to the period of puberty, dyspepsia is very uncommon, and yet at what period of life does the human stomach receive more indigestible material than in boyhood; if the nature of the food, then, was the sole or principal cause of indigestion, the latter should prevail most commonly at that period of life when the

quantity, or quality, or both, is totally unheeded, which is contrary to the fact.

Again, "irritation of the sexual system," especially at puberty, gives rise to sympathetic eruptions, such as the different forms of lepra, psoriasis, and acne, also, hypertrophy of the tonsils in the female, &c.; the areola tumor in both sexes: "long continued irritation" originates a poison possessed of the same properties as the irritation which produced it. Here is the origin of one specific poison. Irritation of the mucous membrane of the eye, produces ophthalmy, "long continued" irritation, aided by heat, &c. originates a poison possessed of the same specific characters, such was the notorious Egyptian ophthalmy, such perhaps is phthisis pulmonalis.

The following appearances were found on examination of a dog, which, so far as I could learn, must have died from spontaneous hydrophobia:—

Case I.

Head.—Membranes much injected; slight effusion between the pia mater and arachnoid; brain also injected, with slight effusion in the ventricles; blood in the sinuses fluid.

Mouth.—Tongue bluish, lips vermilion-coloured.

Pharynx and œsophagus.—The muscular structure much injected; the mucous lining unusually pale.

Larynx and trachea.—The trachea contained frothy mucus, and, with the larynx, was somewhat injected.

Lungs—Highly injected, and of a rich vermilion hue; on the right side soft, and the upper lobe much contracted.

Pleura.—Injected.

Pericardium—Contained very little fluid.

Heart—Contained an unusual quantity of blood, black and partly fluid.

Liver—Highly injected, and offering the same vermilion hue as the lungs.

Gall-bladder—Nearly full of healthy bile; its ducts free.

Diaphragm—Injected.

Stomach—Contained sticks and straw, with a small quantity of frothy mucus, or saliva; the muscular coat, strongly contracted, appeared to have suffered violent spasm; the cardiac orifice inflamed, or rather softened, to the extent of an inch in diameter.

Bladder—Contracted, containing a teaspoonful of urine.

Kidneys—Overloaded with blood of a dark colour.

Intestines—Healthy, but distended with fæces, the rectum particularly.

Iliac veins—Considerably distended with fluid blood.

Testes and epididymis—Highly injected.

Penis—Livid.

Case II.

Previous to the death of the dog he bit several others, one of which became hydrophobic, and died, but not before it had bitten a young Italian dog, then labouring under the distemper. This case (for I took some pains to satisfy myself) at once establishes the opinion that communicated hydrophobia is contagious, a point which some authors have entertained as doubtful. This dog having died in less than forty-eight hours, was submitted to my examination, and offered appearances very different from the preceding, in the following order:—

On removing the upper half of the cranium, its internal surface presented a rough surface, the internal plate having undergone partial absorption.

The pleura pulmonalis presented a spotted appearance, leading to the presumption that the lungs were tuberculated, which, however, was not found to be the fact.

The lungs much inflamed; the inferior lobe had undergone complete change of structure, and was, in fact, hepatized.

Heart contained an unusual quantity of black blood; the right ventricle a firm layer of coagulable lymph.

In the stomach was found a softening of the mucous membrane, with spots of extravasated blood, while the muscular coat appeared violently contracted; in other respects the remaining symptoms approached, more or less, to those stated in the preceding case, and which I have uniformly found in all examinations made by me, whether in the sheep, the pig, the dog, or the cat.

These morbid appearances, therefore, which are noticed as confined to the second case, may be fairly considered as peculiarly the effect of the previous disease, or of the super-addition of high excitement, upon an organ, or organs, already suffering morbid action, and are not, strictly speaking, referable to the hydrophobia. Such appearances as belong peculiarly to bodies (whether of man or animals) which have been examined after death from hydrophobia, bear a strong resemblance to those noticed in hysteria, as will be seen by the following report of a society for investigating the former disease:—"An appearance has in general been seen on the inner coats of the stomach, near the cardia, similar to what is found in the bodies of persons who have had slight inflammation, that is, a greater number of red vessels, with small streaks of red blood."

In addition to this, it may be noticed, that the "sexual system" has not unfrequently been found highly injected, more especially, perhaps, in cases of spontaneous hydrophobia; this effect, observed by most writers on the disease (Dupuy, of Alfort, Hamilton, Vaughan, &c.), has also been detected in most of the examinations made by myself. In the cases of Stanier and Lind-

say, related in Dr. Hamilton's work, as spontaneous hydrophobia, dots of extravasated blood and evident traces of inflammation were observed at the superior orifice of the stomach, extending along the curvature towards the pylorus. In a case lately published in THE LANCET, by Mr. Davey, of Portsea, it is stated, "There were no vestiges of inflammation in the œsophagus, its appearance being wholly normal; though the œsophageal extremity of the stomach presented a circle of inflammation, occupying the mucous membrane, being nearly an inch in diameter, the lower end of which, or that nearer the stomach, displayed an irregular ulcerated edge, which extended throughout the circumference of the tube, of variable breadth, of from two to four lines."

In the examinations made by myself, the stomach had, in every instance, undergone some physical change; either it presented blushes of inflammation, softening of the mucous membrane, small dots of extravasated blood, and, in most instances, violent contraction of the muscular coat; and in the following opinion of Dr. Hamilton I freely concur:—"From this we may conclude, that these appearances (of the stomach especially, and œsophagus) are peculiar to animals, of whatever species, dying of this affection, and that the exceptions noticed by Morgagni, Vaughan, and others, are too few to destroy the fact of this general observation."

I would here remark, that the change in the mucous membrane appears to be a consequence of the irritation in the muscular, for in several instances it merely required a slight pressure of the back of the knife to separate the two coats, and the dots of blood above mentioned appear to be produced by a rupture of the capillary vessels, proceeding from the muscular to the mucous or internal lining; nor is the "ramolissement," or softening, of the mucous membrane, in my humble opinion, a consequence of inflammation, but of the high irritation of the muscular tissue, thus affecting the mucous surfaces secondarily; nay, *I am not quite certain, that it is not an immediate consequence of a diminished quantity of blood, with increased action of the capillary arteries*, for if the mucous membrane was in a state of inflammation it ought also to secrete pus, as in gonorrhœa, ophthalmy, &c., &c.

Now, if we find identity of symptoms and identity of morbid appearances, as "identity of effect argues identity of cause," the same cause which produces hysteria should also give rise to hydrophobia.

What are the anatomical peculiarities of the dog? First, you have no vesiculæ seminales, the vas deferens terminating at once in the prostate gland. Secondly, their skin, which does not admit of perspiration; hence the breathless panting of dogs in hot weather; hence also the fact, that British-bred dogs are, with great difficulty, kept alive if transported to a hot climate, but more particularly, perhaps, the West India islands. A friend of mine, who was a resident there for some years, informs me that it is found impossible to retain the British dog long in a state of health when once arrived there; that the majority generally die in a very short time, and those which continue to exist, soon become degenerated, losing their native courage and strength. It has long since been generally allowed that, of all animals, man is the most capable of resisting changes of climate and temperature, the reason being, undoubtedly, the structure of his skin, which, by regulating the quantity of heat by transudation, maintains the equilibrium of health, whether in the Torrid or the Frigid Zone.

It may be objected to this theory, that the vesiculæ seminales are not absent merely in the dog but in the whole genera, canis and felix; therefore, if this were the cause of hydrophobia, it ought also to occur in them all, more especially the lion, tiger, leopard, panther, &c., when closely confined, as is universally the case when brought into Europe. I strongly suspect that this *ex-parte* reasoning is erroneous, for if (as has long since been established) great heat of climate is opposed to the production of hydrophobia, even in the dog, which is most commonly the subject of this disease; then it is but fair to conclude, that the same cause which contributes to *his* impunity may also have the same effect as regards the above mentioned animals, the more so, that they are peculiarly natives of the warm climates, independently also of their existing in a state of nature. It appears, then, enough for our present position, that all animals, natives of the temperate climates, the dog, wolf, fox, and cat, who do not possess the vesiculæ seminales, are the subjects of spontaneous hydrophobia.

The above opinion is materially strengthened by what we observe in the different varieties of mankind: the aborigines, or natives of warm climates, differ physically from the aborigines of temperate climates; and although man is the only animal, *omnivorant* in all quarters of the globe, still that there are physical peculiarities in each variety, is proved by the fact, that where the one enjoys health in a temperature below zero, the other is equally lost, if removed from the equator.

The reasons why this disease does not more frequently originate in the human subject (for it does originate in man and woman too), are both moral and physical; the former constituting the principal difference between man and animals,—constituting, indeed, the rational being; the latter, or physical state, implying his social condition, and the peculiar anatomical construction of

the sexual organs, in the existence of vesiculæ seminales, the skin, and the lachrymal system; while in woman, in addition to the skin and lachrymal system, the periodical relief afforded to the sexual system, by the catamenia, and thereby to the whole body, constitutes a condition equally peculiar to the female human subject.

The greater susceptibility to disease in man, the more perfect development of the nervous system, and the exercise of thought and reason, &c., &c., &c., under indisposition, however slight, dictates a recourse to medicine, and points out a method entirely out of the reach of the lower order of animals. If there be determination of blood to any particular organ, the brain, heart, lungs, liver, or intestines, a sensation of uneasiness, or of pain, indicates that "all is not well," and leeches, bleeding, or a black draught are in immediate requisition; the diet undergoes a complete metamorphosis, and the patient is *placed at once out of the sphere of the operation of those causes which contributed to his derangement.*

Far different is the case with the dog; confined to his kennel, perhaps for months, without an opportunity for change, or of following the instincts of nature, especially that instinct which, in the words of Broussais, is the most important of all, for it determines the continuation of our species, the œstrum veneris arrives (for, although it exists all the year, it becomes more urgent at particular seasons). The secreting and excreting systems which exist so abundantly in man, in the dog are of the most limited character; the skin, which in man admits of enormous evacuation, in the dog refuses relief. The vesiculæ seminales are absent; there can be no relief by the secretion of semen, which, *constantly going on* in the human subject, in the dog *must be* secreted during the venereal orgasm; the lachrymal system affords little or no evacuation; and the only three systems which can unload the body are, for the most part, inadequate to the effect; these are the urinary, intestinal, and salivary.

The urinary bladder small, and generally much contracted, appears to receive but a small quantity of fluid; for the kidneys are commonly overloaded with dark-coloured blood, which I have considered (whether as a cause or consequence) indicative of more or less suspension of action.

The intestines, considerably distended with fæces, are so far from determining to diarrhœa, that constipation is almost an invariable attendant upon hydrophobia, although in one case, considered to be spontaneous, constant and, apparently, very painful tenesmus was present.

The salivary system seems to be the one which nature herself points out as peculiarly sympathizing with a highly excited state of the sexual system; and it is well worthy notice, that mercury, as a medicine, and hydrophobia as a disease, both manifest their action peculiarly upon the salivary glands; *peculiarly*, I say, for the *general* morbid appearances presented on the dissection of a rabid animal, intimately resemble those which are found in the bodies of animals killed while under the influence of mercury, as from several experiments recently made on rabbits, I myself can testify.

This excitement of the salivary glands has been frequently noticed by writers on hysteria, and although occurring but in severe paroxysms of that disease, shews that, under a state of high local excitement, the salivary glands do sympathize with the sexual system. In order, therefore, to place the human male subject in such a situation as that hydrophobia may originate, it is necessary to suspend the operation of moral restraints, the action of the skin, the utility of the vesiculæ seminales, &c.; and, in the female, the catamenia, the action of the sympathetic mucous membranes, the lachrymal and urinary systems; or that, in either, the local irritation shall become so high and violent, that the ordinary secreting and excreting systems are incapable of affording sufficient evacuation. Hysteria, therefore, I regard as physical disease, or a disease consisting in a physical change in the state of the sexual system. "This remark applies equally to the diseases commonly called nervous." I cannot understand that there is in the whole host of diseases to which man is obnoxious, "a purely nervous disease," or a disease in which pathology cannot detect some physical deviation from its normal condition, of some part of the body. The following case is a powerful illustration of the above remarks:—

M. Salva communicated to Dr. Bouteille the case of a man, 36 years of age, who was, on Monday, November 10, 1783, attacked with an incessant erectio penis cum seminis copiosa emissione. In this state he remained, more or less, till the 13th. He then became thoughtful, sad, and oppressed, and harrassed with the same salacious propensities; yet, though a married man, from some extraordinary apprehensions, he remained continent for some days.

On the 16th, a complete hydrophobia came on; even the noise of water poured from one vessel to another, distressed him; in a word, he had all the symptoms which attend the disease from the bite of a rabid animal.

On the, 18th he became furious and delirious, so as to require to be bound. He spat much upon the bystanders; continued to have the same aversion to liquids, and at eight in the evening of the 19th he died.

It is farther observed, that the symptoms were exactly similar to those of six persons whom the doctor saw die hydrophobic, from

the bite of a mad dog. This, however, was a case of spontaneous hydrophobia, for, on the strictest inquiry, it appeared that he had never been bitten by any rabid animal.

Again; a dread of water, and difficult deglutition, occur when no obvious cause can be assigned. These have been more strictly called *spontaneous*. They may be the consequence of other diseases, such as hysteria, melancholia, mania, &c. In all these cases there is great difficulty in the diagnosis, from the strict resemblance to the rabid hydrophobia; they often, like it, prove fatal. There are a discharge of saliva, convulsions on the touch of water, timidity, great sensibility to cold air; *and even on the inspection of bodies after death, lesions of the stomach, such as present themselves in the true hydrophobia have been detected.* These may be more strictly referred to tetanus, or, at least, to the class of nervous affections. Dr. J. Hunter attended one arising from hysteia, which he referred to this head.—Dr. Hamilton.

If it be important that the name of a disease should as much as possible express its nature, "hydrophobia" is a highly improper term, since, although commonly present in the human subject, it is generally absent in animals, and should give place to the "contagious hysteria" of animals, or the "syphilis" of animals, either of which would imply, in a great degree, its true nature; for although it originates as hysteria, yet having originated, it obeys the same laws as the venereal poison, and in this view, hydrophobia, which is the "secondary symptom" of the infection, may safely be compared with the "lues venerea" following syphilitic infection, both as to the cause of its supervention, the time of its appearance, and the locality of its effect; bearing in mind that the one, originating in a mucous membrane, affects the mucous membranes; and the other, originating from irritation in a serous and non-secreting structure, affects also the serous and non-secreting membranes.

The natural division of hydrophobia, is into the "spontaneous" and the "communicated;" and, from what I have observed, I should incline to the belief, that the pathological appearances will be more clearly present in the spontaneous form of this disease. I am also led by facts, when I form the opinion, that hydrophobia arises most commonly in the male animal, and at the period of puberty. The facts from which I draw this opinion are, I confess, but few, and may, for aught *I know*, be merely "coincidences," and not illustrating the "general law." Should future experience, however, establish this view, it would appear that the partial menstruation of the female animal during the "œstrum veneris," is the principal reason for this comparative impunity from originating the disease. Still more curious would be the "sequitur," that as the poison of syphilis, originating on a mucous membrane in the human female, manifests its action on the exposed or mucous membranes, so also, by the same law, the poison of hydrophobia, being a consequence of non-secretion, affects also the non-exposed, non-secreting, parts of the body, and this it is which is, in all probability, the cause of its fatality.

The effect on the salivary glands, previously noticed, appears to be a consequence of their extremely high irritation, and hence, as in violent hysteria, becomes an additional effort of nature to relieve the surcharged body: and as the lues venerea is commonly a consequence of imperfectly destroyed venereal local irritation, so also is hydrophobia preceded by pain, uneasiness, and smarting in the bitten part: in both, the time of the appearance of the "secondary symptoms" is equally uncertain: and wherever the poison of syphilis is most severe, there, also, hydrophobia prevails, and the contrary: in short, while high "long-continued irritation" gives rise to venereal poison in the female subject, high long-continued irritation in the dog gives rise to hydrophobia.

Nothing, then, really exists but individual bodies, having certain individual actions, according to a law, begun at the creation of the world; and so far from *this or that* morbid poison having had an individual and solitary origin from *this or that* extraordinary combination of nobody knows *what or where*, the venereal poison originates "under our noses" daily; the poison of hydrophobia in the very cat or dog by our own fireside; small-pox not in a camel in the deserts of Arabia, but probably in the genus *homo*, our next-door neighbour; and cow-pox, not from the accidental contact of a "*grease*"-y hand with the teat of the cow, but under laws "fixed and immutable," which have ever governed the operations of nature, throughout whose whole works reign universal order and simplicity, containing and constituting the Alpha and Omega of all wisdom.

To recapitulate,—irritation of the sexual system in females, gives rise to hysteria. This, owing to the delicacy of their organization, and their peculiar physical condition, is generally a mild disorder. In other cases, when the subject is of violent passions and sanguine temperament, the sympathetic action of the salivary system is excited, and the affection assumes the *character* of hydrophobia. Lastly, if a still higher excitement ensues,—violent spasm of the stomach, dread of water, foaming at the mouth, and death, proclaim the identity in nature, symptoms, morbid appearances, and causes of hysteria and hydrophobia.

I ground my belief in the identity of hysteria and hydrophobia,—

1st. Upon identity of symptoms.
2ndly. Upon identity of morbid appearances.
3rdly. Upon identity of cause.

Further, from the nature of the symptoms and morbid appearances, I *conclude* that hysteria and hydrophobia are consequences of a physical deviation of the sexual system from its normal condition.

CASE OF CLUB FOOT

SUCCESSFULLY TREATED BY THE

DIVISION OF THE TENDO-ACHILLIS.

To the Editor of THE LANCET.

SIR:—The time is fast approaching when cases similar to the one which I am about to narrate will have been so common as to render it a work of supererogation to record them, but in the infancy of this most scientific, safe, and useful operation, it becomes the duty of every man who has it in his power to help to remove the prejudices which exist relative to the danger to be apprehended from the division of tendons, and the scepticism as to its beneficial results.

My eldest son, a healthy boy, born in Feb. 1823, was the subject of congenital club foot. The case was not considered to be a very bad one, and I was advised that by dint of rubbing, pulling, and the use of appropriate mechanical contrivances, the deformity might be remedied. Accordingly I placed him under the care of the late Mr. Shaw, and that gentleman's plan of treatment was sedulously followed for several years; subsequently he was seen by other medical men, and all that skill could suggest or contrive was tried in vain, for at the end of fourteen years and two months, the boy appeared to be doomed to irremediable lameness. I had heard that Dr. Stromeyer, of Hanover, had divided the tendo-achillis, but, notwithstanding the most diligent inquiry, I could not learn that the operation had ever been attempted by an English surgeon. Great, then, was my delight on reading in THE LANCET of April 1st, 1837, an account of the discussion of Mr. Whipple's case before the *Royal Medical and Chirurgical Society*. I wrote immediately to Dr. Little, who not only promptly and liberally proposed to send me the requisite information, together with Stromeyer's apparatus, but at the same time offered to undertake the cure of my son's foot if I would send him to London. The disinterested kindness which he thus evinced, was fully borne out by subsequent attentions. The skill displayed in the operation, the incessant watching over the gradual improvement in the position of the foot, the almost paternal anxiety to avoid suffering to the patient, and, at the same time, to secure success to the operation, together with the friendly consideration of the maternal anxiety of Mrs. Ray, who was in attendance on her son, have been such as I cannot do sufficient justice to, or cease to be grateful for, to the latest moment of my existence.

The following will shew the state of the foot prior to the operation:—In the erect posture the patient appears to be simply standing upon the toes and ball of the foot of the affected limb, the heel being drawn up by the muscles of the calf as high as possible, not touching the ground by 3 inches; in consequence of the extreme rigidity of the tendo-achillis and gastrocnemii muscles, it is impossible to place the foot in its natural position by bringing down the heel. In walking the patient limps a good deal, and treads on a very small part of the sole; there is not much inclination of the foot inwards, though he treads more upon the ball of the little toe than of the great toe. In the act of walking there is no bending at the anklejoint. Although the entire affected extremity is rendered longer, through the extension of the foot, the leg is, in reality, somewhat shorter than that of the opposite side. The tibia and fibula are also more slender; the inner malleolus presents itself more anteriorly, and the other more posteriorly, than natural. The heel being drawn up as much as possible, causes the foot to appear to be a continuation of the leg; it is, in fact, nearly in a straight line. The arch of the foot is much greater than natural; the tarsal bones, therefore, present a great projection upwards; the affected foot is an inch-and-a-half shorter than its fellow; the muscles of the leg are much less developed than those of the sound limb; there is no paralysis of the tibialis anticus peronei, or other muscles on the front of the leg; he can put them in action at pleasure, without, however, being able to move the foot much.

On the 1st of May (in the presence of my friend Mr. Kingdon, Mr. Hamilton, of the *London Hospital*, and myself) Dr. Little divided the tendo-achillis, about an inch-and-a-half above the malleolus, by introducing a very narrow, slightly-curved, bistoury between the tendon and the deeper-seated muscles and tibial vessels, directing the edge of the knife against the front of the tendon, dividing it from within outwards, leaving the skin covering the tendon untouched. The section was accomplished most skilfully, and the *minute* puncture in the skin was covered with a strip of adhesive plaster, and a loose bandage was applied round the foot and leg. Any separation of the divided ends of the tendon was prevented by placing the foot in its deformed position upon a stiff pasteboard splint, applied along the outer side, and by adjusting the limb, with the knee bent, upon a pillow; on the second day the re-

port was that he had had no pain or tenderness, and would not have known that anything had been done to the limb but for occasional contractions of the muscles of the calf, they having lost their fixed point.

3rd day. The puncture (which is inconceivably small) was found agglutinated, although not firmly cicatrized; the application of the extension foot-board was consequently deferred another day or two. The ends of the divided tendon cannot be felt, owing to the effusion of coagulable lymph which is necessary for its perfect re-union.

4th day. The puncture firmly cicatrized, and Stromeyer's foot-board applied. The boy is perfectly well. The handling of the foot preparatory to the application of the apparatus, and the attempt to draw the heel down, produce no pain.

10th day. The stretching of the lymph effused between the ends of the tendo-achillis, the elongation of the contracted ligaments of the anklejoint, and the consequent bending of the foot upon the leg, have been gradually continued, so that the foot at present is nearly at a right angle with the leg, and all this has been effected without pain. He has been able for the last two or three days to walk about the room, with the foot-board, which diminishes the irksomeness of wearing it, and assists much in bringing down the heel to the ground.

14th day. The foot is completely at a right angle with the leg.

19th day. To day the use of Stromeyer's foot-board is partly discontinued, and he wears in its stead Scarpa's shoe,* modified by Stromeyer, which tends better to overcome the too great curvature of the bones of the tarsus, now that the foot is bent to the right angle. He walks about in it very well; the entire sole and the heel touch the ground; nor does the foot, when removed from all apparatus, return to its vicious position. The arched form of the dorsum of the foot, and the inclination of the front row of the tarsal and metatarsal bones, inwards, is now more striking to the casual observer than before; but Dr. Little informs me that the former will be gradually overcome by walking upon the entire sole; the latter, to a considerable extent, by persevering in the use of Scarpa's shoe.

At the end of six weeks and a few days my son returned home, and has since been steadily improving. He continues to wear Scarpa's apparatus, by night, and, during the day, a common laced boot, with an iron stem on the outside of the leg; his lameness is very slight, and becomes less daily, but it must be expected that until there is greater flexibility of the anklejoint, less tenderness of the sole (which, be it remembered, never before touched the ground), and the different muscles, ligaments, and bones, have had time to accommodate themselves to the entirely altered state of things in the limb, he must go halting. I remain, Sir, your obliged servant,

GEO. RAY, M.R.C.S.

Milton, Kent, July 6th, 1837.

* It is difficult to describe this very simple but admirable apparatus, but I am sure that Dr. L. would have much pleasure in shewing it, together with Scarpa's instrument, at No. 126, Fenchurch-street, to any person who would take the trouble of calling on him.

SPONTANEOUS CURE OF POLYPUS NASI.

To the Editor of THE LANCET.

SIR:—It is with much pleasure that I transmit the enclosed, which I am led to believe may not prove uninteresting to the numerous readers of your able journal. I have in hospital as well as in private practice, met with several cases of polypus, but never before witnessed, and never read of, a cure being effected by the remedial powers of nature alone. I am, Sir, your constant reader, A. B. MADDOCK.

July, 1837.

Sarah Pearce, ætat. 30, while labouring under an attack of hepatitis, was greatly annoyed at different periods by a severe lancinating pain, situated in the left nostril. She did not, however, mention the circumstance while I was attending her for the above complaint, but patiently endured the "torments" (as she now expresses it) until a fungus made its appearance. This continued silence arose from the fear that I should "cut" her, as she said. I then instituted a careful examination of the nose, and found it to be a confirmed case of polypus. It was of the *gelatinous* kind, presenting a yellow and transparent appearance, very thinly streaked with vessels, which, however, did not cause a red appearance. It was connected with the schneiderian membrane by a small peduncle, loose in the nose, and taking its origin in the middle chamber, between the superior and inferior turbinated bones. At this time it was of about the size of a small marble. I immediately proposed to remove it, but I could not obtain her assent. I again visited her in about a fortnight, and found her greatly altered, both in health and appearance. The fungus now completely filled the cavity of the nostril, and, from its pressure upon the delicate cells and membranes, caused indescribable anxiety. The eyes became watery, from the pressure on the lacrymal sac, and, in like manner, by the pressure of the tumour against the mouth

of the eustachian tube, hearing was almost destroyed. The swallowing was in some degree affected by the soft palate being depressed by the tumour. At this time she was continually seized with a severe headach, which would sometimes cause her to scream out, from the intense agony she endured. The fungus now projected from the nose, and a constant fœtid discharge issued from it. The pulse low, and appetite very bad. I again proposed that she should submit to the operation usually resorted to in like cases, but she declared that she could not (she was then in a miserably nervous state), and "preferred dying in the state she was;" at the same time she objected to the use of any topical applications. As my presence, under these circumstances, was useless, I did not see her until the expiration of three weeks. What was my surprise at finding that the fungus had decreased to half its original size, and that her health was rapidly mending. The discharge was still great, and occasionally accompanied by drops of blood, in which were found minute portions of fungus. The headach, which formerly much resembled the agony endured in tic douloureux, had entirely left her. She now began to think that she should survive the attack, and I left her, much gratified, as well as astonished, at her sudden and unexpected improvement. I called upon her again at the end of ten days, when the whole fungus had totally disappeared, not a vestige of its former existence remaining. All pain had fled, her faculties were restored, and she declared that she had never been better in her life.

The rapid, I may say the spontaneous, cure of this dreadful disease, I cannot but regard as a very unusual occurrence. This complaint was totally different in its character from "enlarged pituitary membrane," which I have seen sometimes mistaken for polypus.

The woman is still suffering under a chronic affection of the liver, to which she has been subject for many years, but is much better than she was before the appearance of the above disease.

THE EFFICACY OF ERGOT OF RYE NOT DEPENDANT ON VOMITING.

To the Editor of THE LANCET.

SIR:—In the course of an extensive practice in midwifery, for nearly a dozen years, I have had frequent occasion to administer the secale cornutum, either in form of the infusion of the seeds, tincture, or powder. I first used the infusion, then the tincture, and, lastly, the powder. The infusion increased the action of the uterus a little, the tincture was more powerful; but it is from the powder that I have witnessed such decided and uniform effect, that there is no doubt as to its action on the uterus, and that so invariably, that I am induced to call in question the theory of Mr. Sagar, as communicated in THE LANCET of June 10, the "sum and substance" of whose letter is, that vomiting produces labour pains; or, in other words, that when vomiting is produced by the ergot of rye, *that* vomiting is the sole exciting cause of the uterus contracting on the fœtus, by the "diaphragm coming in contact with the fundus of the uterus, or causing other viscera so to do." While in attendance on cases of midwifery, I have frequently been mortified to find vomiting supervene on the regular contractions of the uterus, and *protract* the labour, but never, in my whole experience have I known the action of the uterus thereby increased. No sooner does vomiting commence than the contractions cease. This is one reason for my dissent from Mr. S.'s opinion.

With regard to the uterus coming in contact with other viscera, it is difficult to say what meaning he intends to convey, for if the uterus would not bear touching during a state of pregnancy, the viscera would never be at peace, and there would, during this state, be continual rebellion, revolution, and war, within the cavity of the abdomen. Such a commotion would ultimately lead to the destruction of the whole corporeal fabric. This is another reason why I dissent from Mr. S.'s opinion. In my experience of its use, I have seldom seen vomiting induced, except when I gave more than a scruple for a dose; in that case it was never rejected *immediately*, nor was the whole of it thrown off the stomach, but enough left to produce the desired effect, after the vomiting ceased. This appears to have been the manner in which it operated in Mr. Raleigh's case; and I am very much inclined to think that it is the way in most cases, save where the contractions come on *spontaneously*. There is a peculiarity in the action excited by the secale, which, I think, from the constancy and uniformity with which I have observed it, may serve as a criterion to distinguish it from the natural contractions; it is this, that while the latter are attended with distinct intermissions, the former is not, but is continued with only slight abatements, instead of complete freedom from pain. I am, Sir, your most obedient servant,

Newcastle, June 28th, 1837. OBSTETRICUS.

THE MEDICAL OFFICERS OF THE NAVY.

To the Editor of THE LANCET.

SIR:—There was a communication in THE LANCET of the 6th of May, dated Dublin, and signed, "AN OFFICER IN THE ARMY MEDICAL SERVICE," headed thus, "Why have these officers (medical officers of the army) been excluded from the benefit of the recent brevet?" And in that letter the following words occur:—"It has even been said (although we scarcely believe it) that the naval surgeons have put an obstacle in our way, by pressing their claims to a similar promotion."

It is not clear to what circumstance, involved in the above words, your correspondent's unbelief attaches—whether to the fact of the naval surgeons having pressed their claims,—to the pressing of such claims having put an obstacle in the way of the army medical officers,—or to the right and propriety of naval surgeons making such claims. To a person disposed to take offence, the structure of the sentence, most probably, conveys the last meaning; but we are not so disposed, and therefore willingly, and at once, acquit him of wishing to raise such an illiberal, nay ridiculous question. We consider not only our brethren in the army, but all right and real members of the profession, our friends, knowing that, though the nature of our service often necessarily separates us, we ought to be, and are, intimately connected, so far as great and permanent matters of interest are concerned; and we would take it for granted, if we had no better means of judging, that they entertain similar feelings towards us. We therefore grudge the medical officers of the army none of the good things which they enjoy, and even wish them more, believing that they deserve more. But, in our good wishes for them, we cannot be supposed altogether to neglect our own concerns,—concerns which, though we may not have forgotten them, have been for a long period most unjustly, and therefore unjustifiably, neglected.

Whether the claims of the naval surgeons were pressed on a recent occasion, and if so, whether they produced the unhappy effect which your correspondent deplores, having no means of knowing, I will not attempt to discuss. I will confine myself to the question of their right to raise and to urge such claims; for though the medical officers of the army will not dispute them, others, men having authority, and out of the profession, may.

For more than thirty years, nothing has been done for the medical officers of the navy, while much has been done for their brethren in the army, especially at the conclusion of the war. Why is this? Has the standard of qualification in the navy been lower than in the army? Have the medical officers done less? Have they suffered less? I leave these questions to be answered by those who know the two services, and knowing how they must be answered, I ask again, have we not a right, clear and undisputable, to ask for justice, to ask, at any rate, to be placed on the same footing as the medical officers of the army? We do not wish them to be pulled down to our level; we ask to be raised to theirs.

Sir Edward Codrington stated the other night, in the House of Commons, that for upwards of thirty years, only one naval surgeon had been promoted, while, in the army, upwards of one hundred surgeons had received promotion in the same period. Such things one could scarcely think possible. Such differences in things which ought to be equal, should evidently not be permitted, nor is it likely that they will be allowed to go on much longer.

It would be idle, it being self-evident, to dwell on the importance of an efficient medical corps for the navy,—to expatiate on the vital importance of having men well educated, well conducted, studious, zealous, and therefore fitted to discharge their duties well. The duties of a naval surgeon are always important, often severe and trying, requiring, for their proper performance, much skill, clearness of perception, and promptness of action. He must generally do all himself, especially in cases of emergency—consultation and co-operation being out of the question; it is therefore essential that he should know how to do it in the best manner. But to get such men into the service, and to keep them in it, they must be encouraged. It will not do to sink them, in comparison, with the same classes of officers in the army, or to try and degrade them by denying them access to the royal presence, or to couple their admission with a stigmatising condition. The physician-general has the welfare of the corps, over which he so ably presides, much at heart, and its members are assured that he will do every thing he can for their advantage; but the men who have the power to mend their condition, and to do them justice, must be brought to see those things in their true light, or no good will come of them.

To you, Sir, and the other members of the legislature, who take an interest on such not unimportant matters, we confidently look for the advocacy of our just, though long-neglected, claims; at the same time, we take the liberty of saying, that you cannot be engaged in a higher and more humane duty than in securing to the British sailor, in his time of need, the best medical advice. I am, Sir, your obedient servant,

A NAVAL SURGEON.

London, July 8th, 1837.

THE LANCET.

London, Saturday, July 15, 1837.

On Wednesday next, the 18th inst., the fifth anniversary of the Provincial Medical Association is to be held at Cheltenham, on which occasion there is to be the usual glorification of certain Doctors, who have so contrived as to induce some one hundred or hundred and fifty surgeons in general practice to follow the said Doctors, from place to place, in humble admiration of the superior skill, learning, and reputation which those profound Doctors possess.

Taken altogether, this is a very foolish and a very unfortunate affair. When the Society was first instituted we afforded to it a most energetic and cordial support. We thought—unwisely it seems—that it had been originated for great professional objects. We considered that it was to be the instrument for combining the profession, and bringing the powerful members of that body to act in unison, for regenerating the character and respectability of our profession. We believed that the Society was established for the purpose of uniting the profession in its opposition to an unjust and tyrannical system of Parliamentary medical law. That it was designed also to lead on the whole profession to a vigorous attack against our despotic, mercenary, and degraded medical colleges and corporations. In these views and expectations we were not singular, for our opinions were entertained in common, we believe, with a majority of our professional brethren. Most painfully have all our anticipations been disappointed. Instead of accomplishing, or even attempting to accomplish, any great object for the profession, or the community, the Society has been engaged in a series of annual exhibitions, which, with one exception, appear to have been designed with no other object than that of proving that surgeons in general practice are an inferior class of men in this country, and that they merit no higher honour than that of being allowed to follow a few undistinguished Doctors from town to town, where they might sound the praises of those Doctors in humble but earnest strains of adulation. Never was there a more unfortunate failure than the annual meeting of this Society last year at Manchester. What was done there for the benefit of the profession? Oh, yes. We had forgotten. It was agreed that two petitions should be presented to the Houses of Parliament against the medical arrangements of the Poor Law Commissioners, and a Poor Law Committee of members of the Council was appointed, but the judgment with which the selection of those members was made may be estimated by the fact, that Mr. Smith, of Southam—the projector of the self-supporting Dispensaries, and, therefore, the author of *that* iniquity, as well as of those other enormities which are known by the name of Penny Clubs—was one of the members. But it was observed that the Doctors appeared to take little interest in their proceedings after the day of *glorification* had expired. And what is to be done at Cheltenham on Wednesday or Thursday next? We must refer to the programme which has been published by the Council. It appears that Doctor Bostock is to take the chair. The President is then to deliver the address; the report of the Council is to be read, and then, in the expectation that the speeches on the occasion will be of an inflammatory nature, and a highly excitable character, it is proposed that on the following morning the members of the Association should breakfast together at the Pittville Pump-room and Gardens. On the same day, Doctor Bardsley is to deliver the Retrospective Address, Doctor Hastings is to act as chief secretary, and the gentlemen who intend dining with the Association are to communicate their intentions to Doctor Allardice, or Doctor Conolly. Thus, general practitioners, who may travel from the east, the north, the south, and the south-west parts

of England, to be present at the annual meeting of the Society, will enjoy the high gratification of hearing a few pieces of ordinary oratory from a few Doctors, of whom not much is known in practice, and still less in medical literature, and, at the same time, they may avail themselves of drinking the Cheltenham waters in the pump-room of the Pittville Gardens.

We had hoped that nothing worse would happen than what we have here intimated. We had thought that pride and folly would be the most striking characteristics of the next annual exhibition of the dub-ridden Association. There are, however, some grounds for entertaining apprehensions of a different and, in fact, of a far more serious character.

In a note forwarded to us by Mr. H. W. Rumsey, of Chesham, which we have inserted in another column, it is intimated that the proceedings of the Association at the anniversary meeting at Cheltenham, are to be commenced at eight o'clock on the evening of Tuesday next, by a discussion on the subject of the Poor Laws. In other words, there is to be a preliminary meeting, when a plan is to be discussed relative to the treatment of the sick poor, which is to be submitted to the consideration of the general assembly. On the occasion in question, the fruit of the labours of the Committee which was appointed at Manchester, in 1836, is to be laid on the table, and, unfortunately, one of the caterers for the appetite of the guests, is the "self-supporting" gentleman of Southam, out of whose wild and incoherent speculations have sprung the Penny Clubs, and, we fear, other schemes, equally irrational, equally injurious to the welfare of the profession, equally destructive of the best interests of the poor.

Of the labours of Mr. Rumsey, so far as the abilities, zeal, and industry of that gentleman are concerned, in connection with this subject, we can speak in terms of unqualified praise. Since he first entered upon this investigation, he has prosecuted his inquiries with unceasing assiduity, and he has brought to bear upon the question a comprehensive as well as a vigorous intellect. The labours of his father, Mr. Rumsey, of Leeds, of Mr. Robert Ceely, of Aylesbury, of other members of the Committee, are entitled to high commendation, and the warmest gratitude of the profession. We apprehend, however, that there existed one circumstance which was strongly calculated to detract from the value of the services of Mr. H. W. Rumsey, in the important cause in which he had so generously embarked. We believe that he was then, and had been previously, the surgeon of a "self-supporting Dispensary," in the town where he now resides, and thus, from circumstances which in some measure admit of explanation, he was induced to regard with favourable feelings the general establishment of similar institutions. The predeliction thus formed, was indicated, occasionally, in the earliest essays of Mr. Rumsey, on the mandates that were issued by the Poor Law Commissioners for regulating the medical department of the Parochial Unions.

The highly important question relative to the treatment of the necessitous poor of this country, is, it appears, to be again brought under the notice of the Provincial Association, at the approaching meeting. Of course, the adoption of any particular plan by the few members of our profession then present, will not be regarded in the light of a final decision on the part of the immense majority of medical practitioners, but the delusion which, we fear, is spreading on this subject, is of so dangerous a character, that we are alarmed when we find that its noxious powers have been diffused over the perceptive faculties of a single additional victim. Our apprehensions relative to this important branch of investigation have been strongly excited by the contents of a work, entitled, "Medical Relief for the Labouring Classes, "on the Principle of Mutual Assurance;" and, unfortunately, it is from the pen of Mr. Rumsey, of Chesham, who, under his name on the title page, announces that he is one

of the surgeons of the "Chesham Self-sup-"porting Dispensary." The author informs us, in his preface, that the pages of his book contain the substance of a memoir which was read at the last quarterly meeting of the "Bucks Philanthropic Association," the members of which society were, it appears, requested to state, in writing, answers to the following questions:—

1. "What has been the actual effect of the "plan of Pauper Medical Relief, in different "Unions, on the health and comfort of the "population?"

2. "What are the different plans pursued "in various parts of the country, for en-"abling the poor to provide medical relief "for themselves?"

3. "What has been the extent of their "success, and the feelings with which they "are regarded by the profession, as well as "by the poor?"

4. "Whether any more useful or popular "plans can be proposed?"

When we saw these questions set down by Mr. RUMSEY himself, in the preface, we expected, of course, that they would be answered in detail,—answered fully and completely; but, extraordinary to relate, replies are *not* given to these questions, excepting in a summary manner, and by loose general statements. Medical practitioners do not require to be told what is done, or what can be done, by them in the execution of gratuitous duties for the poor. But we are not a little astonished to find, that Mr. RUMSEY recommends the institution of "Health Assurance Societies,"—only *another name* for "Self-supporting Dispen-"saries," and "Penny Clubs,"—without placing distinctly, and candidly, before his readers, a statement of the payment which medical practitioners have received, in the current coin of the realm, for the duties they have executed in the "Self-"supporting Dispensaries," which Mr. RUMSEY regards as the most successful of the whole of that class of institutions. He speaks, indeed, of two of the "most "flourishing" dispensaries; the "Coventry "Dispensary," for instance, he says, is "well "conducted by a highly respectable com-"mittee." But what does he state respecting the pecuniary payment of the medical officers? Why, that "the medical remune-"ration from the free member's fund, is, "*on the whole, satisfactory.*" Then why is not the amount of that remuneration mentioned? *Other* items are explained; the cost of drugs, &c. is stated; but we are left wholly in the dark as to the pecuniary emoluments which the medical officers derive for services performed by them in this "most flourishing" dispensary! Literally, it is a fact, that Mr. RUMSEY has concealed from us *the amount of his own gains in the Chesham Dispensary!* Still, Mr. RUMSEY would call upon the profession to proceed in establishing "Health Assurance So-"cieties," and the following table exhibits the various gradations of the ages of the contributors, and of the sums contributed:—

Age on admission.	Monthly contrib. 13 in a year.	Age on admission.	Monthly contrib. 13 in a year.
Under 15	4d.	51 to 54	6½d.
15 to 20	4	54 — 57	6¾
20 — 24	4¼	57 — 60	7
24 — 28	4½	60 — 62	7¼
28 — 32	4¾	62 — 64	7½
32 — 36	5	64 — 66	7¾
36 — 39	5¼	66 — 68	8
39 — 42	5½	68 — 70	8¼
42 — 45	5¾	70 — 72	8½
45 — 48	6	72 — 75	8¾
48 — 51	6¼	75 & upw.	9

At the end of the table there is the following paragraph:—

"It will be perceived that the estimate "of expenditure, which the preceding Table "of Payments is intended to defray, does "not include either midwifery or journeys."

If the "journeys" be charged for, in addition, at 3d. a mile, and if the whole of the working population of the neighbourhood subscribe on the above terms to a "Health Assurance Society," or a "Self-supporting Dispensary," then does Mr. RUMSEY consider that the medical practitioners of the district who might belong to such an institution, would be sufficiently remunerated. Where, we again ask, are the details of the institutions which have been already esta-

blished? One of them, a few years since, was represented as being in a "highly pros-"perous state," and it was alleged that the said institution was adding abundantly to the emolument and reputation of the practitioners; but, on examination, what did we discover? Unhappily, that the over-worked and persecuted surgeons had pocketed about *sevenpence farthing* each as a compensation for one year of anxiety and toil. Why, we again ask, are the *financial* accounts of the "*most* flourishing" of all—the flourishing Self-supporting Dispensaries, studiously concealed from the scrutiny of the profession? If the "independent poor" have refused or neglected to subscribe *two shillings* a year to a "PENNY CLUB" Assurance, it may be presumed that they would exhibit no attachment for such payments as would be demanded from them by the treasurer of Mr. H. W. RUMSEY's "Health Assur-"ance Society." It seems to be forgotten by the great majority of writers on this subject, that the *destitute poor* are entitled, BY LAW, to medical relief in cases of sickness. The "independent labourer" is perfectly aware of this fact, and he knows, also, that if a really destitute person were to apply to a Board of Guardians for medical aid, and obviously died in consequence of their refusal, that the members of that Board would, according to the spirit and letter of the law, be guilty of the crime of MURDER. The responsibility of the Commissioners and Guardians is, therefore, one of a very serious description, and well do they know it; hence their unceasing efforts to shift it off upon the heads of our profession, by establishing "PENNY CLUBS," and other humbug contrivances. If the members of our body were *true to one another*, the Poor Law affair would present no difficulties. In conclusion, we would admonish the PROVINCIAL ASSOCIATION against passing a vote in favour of the vile Club or Self-supporting-Dispensary system, in any of its forms, or under any less objectionable name. If any plan of the kind be encouraged, on the plea that it may be useful to "Independent La-"bourers," the scheme may soon be extended to *Independent Shopkeepers*.

A widely yawning gulf is now before the profession. If they fall into it, the fault will be their own.

THE APPROACHING ELECTION.

To the Editor of THE LANCET.

SIR:—The prospect of an early dissolution of Parliament having afforded electors an opportunity of making arrangements for communicating personally with members and candidates, on the grievances of which medical men generally now complain, a meeting of the resident practitioners of Lincoln was recently held, at which several resolutions were passed, and a deputation was appointed to wait upon the candidates for the representation of this city, to present the resolutions, and to request their pledge, on all occasions, if elected, to uphold the *independence* of the profession. I am happy to state that each candidate expressed his entire concurrence with our views, and declared his determination to support our cause.

Your insertion of the above will, I trust, lead to the adoption of similar steps in every constituency throughout the kingdom. A simultaneous effort of this kind cannot but have a beneficial influence in the new Parliament. I am, Sir, yours most respectfully,

JOHN HAINWORTH, Hon. Sec.

Lincoln, July 3, 1837.

MEETING OF THE PROVINCIAL ASSOCIATION AT CHELTENHAM.

To the Editor of THE LANCET.

SIR:—Will you have the goodness to announce to your numerous readers, that previously to the approaching meeting of the Provincial Medical and Surgical Association, at Cheltenham,—a meeting of those gentlemen who take an interest in the subject of medical relief for the sick poor, will be held in the Poor Law Committee Room.

In order that sufficient time may be allowed for discussion, it is proposed that the meeting commence precisely at eight o'clock, on the evening of Tuesday, the 18th instant, and that, on its rising, it do adjourn till eleven o'clock on the following morning.

The proceedings of this preliminary meeting will be laid before the Council on Wednesday afternoon, when a plan will be determined on to propose to the general meeting of members.

At the present important crisis, a full attendance of such as are concerned in the matter, is particularly requested. I remain, Sir, your obedient servant,

H. W. RUMSEY.

Chesham, July 10, 1837.

SOLITARY CONFINEMENT, WITH EMPLOYMENT.

The following remarks, extracted from Miss Martineau's recent work on America, bear on the subject which we briefly discussed when analysing, lately, the pamphlet of Mr. Malcolmson on the effect of solitary confinement and low diet on health:—

"In the treatment of the guilty, America is beyond the rest of the world, exactly in proportion to the superiority of her political principles.

"I was favoured with the confidence of a great number of the prisoners in the Philadelphian Penitentiary, where absolute seclusion is the principle of punishment. Every one of these prisoners (none of them being aware of the existence of any other), told me that he was under obligations to those who had the charge of him, for treating him 'with respect.' The expression struck me much as being universally used by them. Some explained the contrast between this method of punishment, and imprisonment in the old prisons, copied from those of Europe; where criminals are herded together, and treated like anything but men and citizens. Others said, that though they had done a wrong thing, and were rightly sequestered on that ground, they ought not to have any further punishment inflicted upon them; and that it was the worst of punishments not to be treated with the respect due to men. In a community where criminals feel and speak thus, human rights cannot but be, at length, as much regarded in the infliction of punishment, as in its other arrangements. Much yet remains to be done; to this end, an enormous amount of wrong must remain in a society where the elaboration of a vast apparatus for the infliction of human misery, like that required by the system of solitary imprisonment, is yet a work of mercy. Milder and juster methods of treating moral infirmity will succeed when men shall have learned to obviate the largest possible amount of it. In the meantime, I am persuaded, that this is the best method of punishment which has yet been tried. Much as the prisoners suffer from the dreary solitude, cheered only by their labour, and the occasional visits of official superintendents, they testified, without exception, and without concert, to their preference of this over all other methods of punishment. The grounds of preference were, they could preserve their self-respect in the first place; and, in the next, their chance in society on their release. They leave the prison with the recompense of their extra labour in their pockets, and without the fear of being led by vicious old companions, or hunted from employment to employment by those whose interest it is to deprive them of a chance of establishing a character. There is no evidence at present, that solitary imprisonment, *with labour*, is more injurious to health than any other condition which is attended with anxiety of mind. The Philadelphia prisoners certainly appeared to me to be more healthy-looking than those at Auburn, or at any other prison I visited.

INGUINAL HERNIA,

SUCCESSFULLY OPERATED ON, AFTER BEING

STRANGULATED SEVEN DAYS.

To the Editor of The Lancet.

Sir:—I shall feel obliged by the insertion of the following case in your valuable periodical. I am, Sir, your obedient servant, J. G. Rawson.

Kegworth, Leicestershire,
July 4th, 1837.

About twelve months ago, Elizabeth Baguley, æt. 45, after lifting a heavy weight, complained of symptoms resembling those arising from strangulated hernia, but as she denied having any tumour in the ordinary situations of hernia, and positively refused to be examined, it was treated as a case of intrususception, by bleeding, the warm bath, purgatives, calomel, &c., but without effect. On the fifth day, stercoraceous vomiting took place, and on the eighth day, there were hiccough, the pulse scarcely perceptible, but intermittent, cold extremities, and great distention of the abdomen. She now submitted to an examination, when a small tumour was detected in the left groin. I immediately proceeded to operate: the peritoneal sac was highly distended with gas, and also contained a considerable quantity of serum; the small knuckle of intestine was pretty strongly adherent to the ring, and of a deep purple hue; the adhesions were carefully separated, the opening was enlarged, and the intestine returned. The patient rapidly recovered, and is still living.

The success of this case appears to me an encouragement to operate, even under the most unfavourable circumstances.

OBSTRUCTED INTESTINE,

ENDING FATALLY.

To the Editor of The Lancet.

Sir:—The following case of obstructed intestine occurred to me some short time back, the particulars and dissection of which I have drawn up, and hope you will think them of sufficient interest for a place in your valuable Journal. I am, Sir, yours most obediently, Wm. Harvey.

42, Great Queen-st., Lincoln's Inn-fields.
July 12th, 1837.

Mrs. C., a stout woman, the mother of several children, was the subject, for some years, of large varicose veins in the left thigh and leg, which, I believe, were produced by suspending a heavy weight in the left groin for some time during the day?

In her last pregnancy I was directed to see her, having a severe pain in the groin, with great discharges of blood from the rectum; these symptoms readily subsided by leeching and saline aperient medicines.

On the 2nd of March, I attended Mrs. C. in a lingering labour, caused by a breach presentation, and a small portion of the funis. The child was born asphyxiated. The usual means were adopted for the resuscitation, during upwards of an hour and a half, without success. The mother, for the first three days, had not a bad symptom. On the morning of the fourth day, she was seized with a severe rigour, and great pain in the situation of the uterus and left inguinal region. She was treated antiphlogistically, and her mouth was speedily brought under the influence of mercury. After a week she gradually recovered, so as to occupy herself in her bed-chamber. She now remained well and free from pain for ten days, when, indulging rather freely in a meat and porter diet, she was again attacked with the pain in the groin accompanied with some degree of tumefaction, with great pain and swelling along the course of the femoral vessels. At this time there were great discharges of blood from the uterus, which lasted for an hour each time, for two days. She was again freely leeched, and an open blister was applied to the groin. The bowels, up to this period, were much relaxed. The symptoms now went on favourably, for a week or ten days, when she was suddenly attacked with vomiting and constipated bowels. Dr. R. Lee was now consulted, and, after a careful examination, thought that there was some enlargement about the ovary and uterus, which produced the obstruction in question. She was again ordered to be leeched, and to take calomel and opium every two hours, until the mouth was affected, at the same time to have a strong turpentine enema administered in the intervals. These means, although actively pursued for five days, produced no effect. Tympanitis gradually set in, and the vomiting continued. She died six days after the first setting in of the vomiting, with all the symptoms of internal strangulation.

The body was opened twenty-four hours after death.—The parietes of the abdomen and omentum were found unusually loaded with fat. The omentum was adherent, by its left side, to the sygmoid flexure of the colon, and the colon, at its lowest part, by recently-formed lymph, to the parietes of the inguinal region. The peritoneum, covering the large intestines, the uterus, &c., was inflamed. An aperture, of the size of a sixpence, was discovered in the descending colon, from which a large portion of its contents had escaped into the cavity of the abdomen. For the purpose of more minutely examining morbid parts, they were removed from the pelvis, *en masse*, when the following appearances were noticed:—Uterus rather large, with the remains of some recent inflammation about the os and cervix. The left fallopian tube and ovary were found firmly bound down to the under surface of the colon, leaving scarcely a vestige of either. The direct obstruction was found to be one of the appendices epeploicæ, coiling round the colon, and the intestine adhering to the fundus and side of the uterus.

On reviewing the nature of Mrs. C.'s occupation, the obstruction produced to the return of blood in the groin, and the very old and firm adhesions connecting the fallopian tube and ovary to the surrounding parts, I think it highly probable that her pregnancies have been produced solely by the right ovary.

ERRORS IN TRANSLATIONS OF THE PHARMACOPŒIA.

To the Editor of THE LANCET.

SIR:—IN THE LANCET (January 21), you were pleased to insert my corrections of errors in Mr. Philip's translation of the Pharmacopœia; permit me to request the medium of THE LANCET to correct rather important errors which occur both in the translations by Dr. Spillan and Dr. Collier. It is a singular circumstance, that although there have appeared four translations, and an original, we have not a correct Pharmacopœia. I remain most respectfully, Sir, your obedient servant,

London, July 5, 1837. G. WHIPPLE.

SPILLAN'S TRANSLATION.

"Strychnia:" insert, *Solution of ammonia*; fol. 68. Read, *Extractum pareiræ*—fol. 119.

"Tinctura ammoniæ composita:" read, *Mastich, two drachms*—fol. 242.

"Tinctura assafœtidæ:" read, *Rectified spirit, two pints*—fol. 242.

"Tinctura opii:" read, *Proof spirit, two pints*—fol. 253.

COLLIER'S TRANSLATION.

"Confectio piperis nigri:" read, *Fennel, three pounds*—fol. 82.

"Hydrargyri ammonio-chloridum:" read, *Solution of ammonia, eight fluid ounces*—fol. 153.

"Hydrargyri bichloridum:" omit, *Distilled water*—fol. 154.

"Pilulæ rhei compositæ:" read, *Rhubarb in powder, one ounce*—fol. 193.

"Spiritus rosmarini:" read, *Water, one pint*—fol. 206.

"Unguentum hydrargyri nitratis:" read, *Nitric acid*—fol. 239.

THE LATIN PHARMACOPŒIA.

To the Editor of THE LANCET.

SIR:—Your correspondent, "TYRO," has misunderstood the only one of my criticisms on the Censors' Latinity, to which he objects, but I will not wound his feelings by any ill-natured remark. *Destillet oleum* is good Latin; "destillat humor," as quoted from Celsus, is equally good; the verb cometh from *de* and *stillo*; the word, as Bardolph said of the word "accommodate," is an "excellent, gentlemanly word," it is its connection with the word *cauté* that renders it nonsense.—What would Tyro think of "oil dropping cautiously down?" Or, to take his own quotation, what if Celsus had written that "humour cautiously flows into the nostrils?" Were we to say that "the Censors cautiously abstained from urging their claims to a diphonous copyright, after attempting to delude the public into a belief of the illegality of a second translation," *that* would be sense; but were we to say that "an emetic cautiously dropped down a royal monarch's throat," that would be nonsense; things inanimate have no caution, neither, at all times, have things animate. Your humble servant,

G. F. COLLIER.

July 10, 1837.

LANCETTED STILETTES.

To the Editor of THE LANCET.

SIR:—Having been in the country during the last three or four weeks, and only receiving THE LANCETS monthly, I did not see your Number of the 17th ult. until to-day; consequently, I was not before aware of Mr. Stafford's remarks on my letter of the 3rd. I, therefore, take the earliest opportunity of answering them, and beg the favour of your inserting my reply at your earliest convenience.

Mr. Stafford accuses me of having made some "erroneous statements" relative to his instrument, "the single-bladed lancetted stilette," viz., that it contains no handle, that its spring was exposed, and that I inferred that there was no regulating screw attached to it.

In my former letter, I certainly stated that Mr. S.'s instrument possessed no handle, there being nothing in the shape of one at the end of the tube, which Mr. Stafford kindly showed me. The rings intended for that purpose, and which are attached below, I had forgotten, not having Mr. Stafford's instrument before me when I wrote, and, therefore, I willingly admit my error; at the same time, I cannot help thinking that my handle affords a firmer purchase, and is, therefore, safer and more convenient. I also stated, that the spring of Mr. Stafford's instrument was exposed, but Mr. S. says that it is internal and concealed, like my own. This I certainly did not consider was the case, as I observed, projecting from the end, a brass spiral wire: in mine the wire is entirely hidden within the tube.

Mr. S. says, that I also inferred that there was no regulating screw to his instrument; but in this he is mistaken, as I have not had the slightest intention of drawing any inference to that effect. In the description of my instrument, I was naturally obliged to notice its several parts, and as the regulating screw formed one, it was, of course, mentioned. As regards the stop-cock, I certainly think it will afford greater advantages than Mr. Stafford seems inclined to admit. For, as I before said, it prevents the necessity, after incising the stricture, of introducing a common catheter, which would be accompanied with increased pain; whatever, therefore, will prevent that, may be considered to be of some use.

I will merely add, that I have not the slightest wish to detract from the praise due to Mr. Stafford's invention, and, without making further comment on either instrument, leave it to the profession to determine as to their respective merits. I have the honour to remain, Sir, your most obedient servant,

WILLIAM EVANS POPE.

Chippenham, Wilts.
July 3rd, 1837.

PROVINCIAL MEDICAL ASSOCIATION.

THE following letter accompanied the first of the communications of a similar character to the following, which we have lately published, but was, at the time, mislaid, and so prevented from being inserted:—

To the Editor,—Several communications, containing suggestions with regard to medical relief for sick paupers, have been made to the secretaries of the Provincial Medical and Surgical Association, as well as to the Poor Law Committee of that Association, and they have authorized me to submit some of these papers to the editors of the principal weekly medical journals for publication, thinking it desirable that every opportunity for discussing this important and difficult subject, should be afforded at the present juncture.

I now, therefore, beg to forward a communication from Dr. M'Cabe of Cheltenham, and request the favour of your inserting it in an early number of THE LANCET. I am, Sir, your obedient servant,

H. W. RUMSEY.

Chesham, June 3rd, 1837.

DR. M'CABE'S paper, not yet published.—ED. L.

A NEW METHOD OF CALCULATING THE

STIPENDS OF MEDICAL OFFICERS UNDER THE NEW POOR LAW.

By BEW LUPTON, *Esq.*

Drawn up in 1836, *and recently communicated to* THE LANCET *by Mr. Rumsey, of Chesham.*

I HAVE only to observe, that after having been nearly twenty years in practice, in a district the population of which is employed partly in agriculture and partly in the cotton and silk manufactories, my knowledge of parish practice is chiefly theoretical, having always declined farming the townships, or having anything to do with the system of tenders.

It has always been my rule to charge the township, in the cases where I have been employed, half the sum for medicines and attendance that I should have done to a respectable farmer or shopkeeper; but I have not been unobservant of what has been going on around me during the above-mentioned period.

If I should propose anything, it would be that, as the poor-rate is for the benefit of the poor only, and it is, I believe, now illegal to pay any sum out of it which is not strictly for their maintenance, a certain per centage of the rate collected should be allowed for medical and surgical attendance, and a similar per centage for medicines, &c., for the paupers; or, if the township or district prefer finding medicines, they should be at liberty to do so.

The amount of per centage on the rate in each case I do not consider myself competent to determine, as it must depend, in some measure, on the density or thinness of the population; but I think the system will be a protection to the medical men against the loss which they would otherwise suffer in epidemics, which cannot be foreseen, or guarded against in any other way that I am aware of.

And, farther, to prevent any bickering amongst the profession, I should propose that each medical man should have a claim to the practice (if he chose to apply for it) in rotation, according to seniority of residence in the township, or district.

Cheadle, near Manchester.

FURTHER DETAILS OF THE PRECEDING PLAN.

By a Member of the Provincial Association.

No alteration, however advantageous it may appear, will, I believe, materially benefit the situation of the medical profession, in reference to pauper practice. Notwithstanding, there does appear to me to be a way in which the respectability of the profession may be somewhat better secured than in the plan now pursued.

1st. The person elected as medical officer of the union, or the district of the union, should not be removeable so long as the duties are efficiently and regularly performed by himself.

The present mode of election, by the guardians, I take to be the least objectionable. Reasons equally as strong as those already noticed may be urged against increasing the number of electors.

2ndly. The remuneration should bear a given proportion to the sum annually raised for the relief of the poor: this proportion to increase, or vary, according to the extent of the union, or the district of such union. If pauperism decreases, then duties decrease, and salary also, and *vice versâ*.

E. g. Suppose, then, that in one district of the union, the whole amount raised, *in the preceding year*, for the relief of the poor has been £3,700, and the distance be no greater than three miles in one direction, and one mile in another direction, and 7-8ths of the population be where the medical officer resides; then say that 2½ per cent. upon the above sum be allowed (exclusive of drugs) for attendance on the paupers of the district.

Item.—Suppose in another (a rural) district the whole amount raised in the preceding year for the relief of the poor be £3,500, and the distances be from one to six miles from the residence of the medical officer, and that 3-4ths of the population be in villages at the greater distances, and within a mile of each other, and where no opportunity offers to obtain drugs,—then say that 3 per cent. upon the above sum be allowed for the district.

And in unions, or districts of unions, where less than £1,000 has been raised in the preceding year for the relief of the poor, then I would say that 5 per cent. be allowed for attendance on the paupers of such union or district.*

In all cases of fracture, requiring several attendances during the progress of recovery, a fee of £1 should be allowed.

If any of the great operations of surgery be performed by the medical officer, double that amount; the moiety of which should be given to any medical practitioner who may

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* Whatever may be thought of this mode of computing the stipend of medical officers, it is quite evident that the amount of per centage proposed by this gentleman, viz., from 2½ to 5 per cent., is far too low for any decent remuneration: *it should not be less than from 5 to 10 per cent.*—H. W. R.

be selected by the medical officer to attend on this occasion.

In the population of such districts as these, there would be enough midwifery practice, exclusive of paupers. I therefore propose that females, *properly instructed*, do attend the paupers, and, in case of difficulty, the medical officer should have £1 for his attendance.

These extra cases would not frequently occur, and the amount in fees to the parishes would be insignificant; but to the medical man it would be the usual and common consideration. They should be paid at the time by the overseers of the parishes in which such cases occur.

Although I name these extras, I would sooner include them in the annual stipend, *if the per centage were raised*. The agreement would be more simplified, and more approved.

An annual stipend thus secured would, in my opinion, be more satisfactory than the appearance of a lengthened detail of extras. I feel certain that it is to the advantage of the profession to avoid bills, in pauper practice.

I do not dwell much upon the examples which I have adduced, but the *mode of appointment*, and the *fixing of the remuneration*, which appear to me to be principles which, if established, will at once recognize the independence and respectability of the professional men who are so engaged.

Hinckley, Oct. 22, 1836.

STOWMARKET PENNY CLUB.

To the Editor of THE LANCET.

SIR:—In a communication from Mr. James Bedingfield, inserted in the last week's LANCET, I find the following observations:—"I become every day more and more convinced of the injurious tendency of the penny club system. In this neighbourhood its effects have been the following;—to induce the parish surgeon to neglect his parish patients, in order to compel them to become members of his club," &c., &c. Upon this passage, I trust that you will allow me to make a few remarks.

In the first place, I have to observe, that when a communication was made to Mr. Bedingfield last Christmas, that Mr. Freeman and myself intended to give up our connection with the medical club established in this town and neighbourhood, Mr. Bedingfield's answer was, that he should still continue to support it, and attend those members who were desirous of having his advice, and he immediately issued circulars to that effect, a copy of which I enclose.

In the second place, permit me to remark, that, putting aside the manifest absurdity of a medical man making a patient enter his club, by *neglecting* him—Mr. Bedingfield at the same time having a club open, where, of course, they would *not* be neglected; putting aside, I say, this sapient inference, I beg leave to observe that as one of the parish surgeons of this neighbourhood, if the observation be intended to apply to me, it is a gratuitous untruth. I have the honour to remain, Sir, your very obedient servant,

C. R. BREE.

Stowmarket, July 2nd, 1837.

MEDICAL REGISTRARS.

To the Editor of THE LANCET.

SIR:—I shall be glad to learn from the medical *parish clerks*, if they think it possible to render the degradation of *our* profession more complete? I say "our," because, perhaps, these would-be-gentlemen may have enough humility to admit the incompatibility of their new pursuit with the scientific and dignified discharge of their old one. The rot-ocracy of Bath nearly succeeded, about twenty years ago, in excluding medical men from their assemblies. Who would not justify the renewal of an attack, which, although then originating in a vulgar affectation of exclusiveness, would now be nothing more than a proper vindication of good society from the imputation of a degrading alloy in the persons of wretched stipendiaries without the education, pride, or bearing of gentlemen? *I commenced this, not in the Commercial Road, Limehouse. I conclude it in the Hampstead Road.* I learn, with bitter mortification, that of every 12 candidates for the *parish clerkships*, 11 are medical practitioners! There is not less justice than severity in your dignified rebuke of the *Nottingham Volunteers*. I pray you, spare not the parish-clerks. Your's obediently,

A. D.

REGISTERING OF FATAL DISEASES.

To the Editor of THE LANCET.

SIR:—Having received a circular from the College of Surgeons, the object of which is the recommendation that surgeons should render assistance to the registrars of deaths and births, by sending to them a written statement of the name of the disease, by which each person dying under the care of a practitioner came to his death, I beg to say, with regret, that I cannot attend to their wishes on this subject, because the College, as the head of the profession, have in no way interested themselves in ameliorating the condition of its members, by petitioning and remonstrating against the disgraceful contract system generally adopted in the Poor Law Unions, under the direction of the

three Poor Law Commissioners. Until some plan be adopted, of universal application, and not dependant upon the whims of Boards of Guardians, I must decline rendering any assistance to the registrars, and I most strongly urge the general adoption of this plan by all medical practitioners, notwithstanding I deeply regret the circumstance in a medico-statistical point of view. I am, Sir, your obedient servant,

A COUNTRY SURGEON.

July 7th, 1837.

DISEASE OF HIS LATE MAJESTY.

The following remarks on the post-mortem examination of his late Majesty William the Fourth appear in the "Medico-Chirurgical Review" of July 1, and have been forwarded to us for publication in THE LANCET:—

"The line of demarcation between the chronic and the acute—the old and the recent—the structural and functional affections, in the above case, is easily defined. In the FORMER category, are, the pleural adhesions in the left side; the tracheal and bronchial ossifications; the enlargement of the heart; ossification of mitral and aortic valves; thickenings of the aortic coats; enlargement and degeneration of structure in the liver; enlargement of spleen; induration of pancreas; granulation of kidney.

"Among the recent, functional, and inflammatory affections, must be ranged the *pericarditis*, with its product adhesion by coagulable lymph; effusion into the right cavity of the chest; hepatization of the lung. That this was *red* hepatization, marking it as the product of *recent* inflammation, is clear from the general inflammation surrounding, and from the specific allusion to *redness of the vessels*—bronchitis. Thus, then, there were three kinds of acute or subacute inflammation engrafted on previous organic disease, namely, pleuritis and pericarditis, pneumonia, and bronchitis. This was a most formidable complication, and we have no doubt that the condition of parts was accurately ascertained, during life, and that the treatment was skilful and appropriate.

"That the organic changes above enumerated had existed for years before the accession of his Majesty's last illness, there can be no doubt; and that the royal sufferer might have lived for years, had the inflammation of so many different structures not supervened, there is every probability. The supervention of inflammation on old standing organic diseases renders the management of the case more difficult, but does not alter the principles of the treatment. In such a multiplicity of inflamed tissues as dissection here disclosed, nothing but the strictest antiphlogistic treatment could offer a hope of relief; and no doubt this course was pursued. The apparent slowness of the pulse, at times, is easily accounted for by the imperfection of the mitral valves. The action of the heart we have often found to be double or triple the number of pulsations at the wrist. This inequality was never accounted for till auscultation cleared up the mystery. In the post-mortem report there is an obscurity respecting the *redness of the vessels*. It does not state whether this redness was confined to the blood vessels, or extended to the air vessels or tubes. The case of our King is altogether one of extreme interest, and we hope that some account will be given of the symptoms, and the effects of remedies."

EDINBURGH ROYAL INFIRMARY.

ANEURYSM OF THE SUBCLAVIAN ARTERY TREATED BY LIGATURE OF THE ARTERIA INNOMINATA, BY MR. LIZARS.—DEATH, [illegible] ONE DAYS AFTER THE OPERA[illegible] MORTEM APPEARANCES.

IN THE LANCET of Jun[illegible] serted a report of the a[illegible] formed on Alexander [illegible] of May previous, and [illegible] of the case for one [illegible] We are now enabled [illegible] the entire case, with[illegible] parts more immediate[illegible] ration; and in order [illegible] before the reader at [illegible] this place a brief outl[illegible] the report which has [illegible] commencing the addition[illegible] 8th of June, referring for f[illegible] page 445 of the present v[illegible] Journal:—

Alexander Duncan, aged 30, a carter, admitted May 28, 1837. Fifteen months ago he met with a fall, and again another fall, on the elbow, eleven months since, which led, six weeks ago, to the appearance of a small pulsating tumour, above the clavicle, indicating aneurysm of the subclavian artery, for which Mr. LIZARS determined on tying the arteria innominata. The operator having arrived at the innominata, an aneurysm needle was carried round it, from the right side, upwards, towards the trachea; the ligature was seized, and the artery tied. The hæmorrhage during the proceeding amounted to about two ounces.

The patient was examined two hours after the operation, and did not present any unfavourable symptoms, excepting some pain in the course of the carotid and brachial arteries, and at about the elbowjoint, which, towards evening, were attended by pain, on inspiration, in the right side of the chest. The pulse was full, and varied from 74 to 78. The pulsation in the tumour

was completely suspended by the ligature of the innominata.

June 1. On the day after the operation the patient felt somewhat easy. The head is free, and a sense of suffocation, which has tormented him during the night, has gone off. He slept in the morning for a couple of hours, and passed the rest of the day without accident. The wound looked well.

3. The pulsation returned in the tumour, and a small quantity of blood distilled from the wound. The face seemed flushed, and the patient complained of the heat of the weather.

4. The pulsation in the tumour (which feels quite hard) has disappeared. He has passed three copious evacuations, and is free from uneasiness. Pulse 110, soft.

6. Patient progressing favourably. No accident has occurred.

June 8, nine days from the operation. Passed a good night, and feels quite easy; bowels regular; tongue moist, and almost clean; pulse 96, and soft; skin cool and ...ist; passed about two pounds of urine ...ght, and the same quantity was drawn ...orning.

...well all night, and has no parti... ...laint. The wound looks well, ...rly healed; it is discharging ...y pus. Tongue still furred, ...ulse 96; skin cool; appetite ...a little chicken soup with re... ...t complain of thirst.

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...ssed a good night, and is in all re... ...the same as yesterday. Two pounds ...a half of urine drawn off.

12. Did not sleep so well as usual; perspiring a great deal. Complains of slight nausea. Tongue furred; pulse 100. Has had two stools since yesterday.

13. Passed rather a restless night. Complains much of thirst. Pulse 100; tongue furred, and rather dry; skin cool and moist; bowels regular; still complains of nausea; three pounds of urine were drawn off. Habeat q. pr. *calomel*, 3 grains.

Vespere.—The calomel has operated three times. Vomited a good deal of bilious-looking stuff. Nausea gone; pulse 110. Feels more comfortable than he did in the morning.

14. Passed a good night, and has no particular complaint. Tongue much cleaner; skin cool and moist; very little thirst; bowels regular; appetite good. Passed two pounds of urine.

15. Passed a good night. Feels better than he has done for the last two days. Pulse 96, and soft; tongue almost clean. Takes beef-tea with relish; has had some weak bitter table-beer. The wound has healed, with the exception of a small sinus, which is discharging healthy pus in a moderate quantity, and which, it is presumptive, communicates with the ligature. Bowels regular; skin cool and moist.

16. Urine still requires to be drawn off every morning. Three pounds of urine were drawn off to-day. In all respects the same as yesterday.

Vespere, 7, P.M. On dressing the wound the knot of the ligature was found amongst the pus. (At the operation both ends of the ligature were cut away.)

June 17, 11, A.M. Passed rather a restless night, and at present complains of slight pain in the right side, and difficulty of breathing, which is much increased on taking a full inspiration; face flushed; pulse 120, full; skin hot and dry; tongue slightly loaded and dry; countenance anxious; great thirst; during the morning has been troubled with nausea and diarrhœa; urine passed naturally this morning. Apply fifteen leeches to the painful part. Three grains of *calomel*, one grain *tartr. of antimony* in an ounce of water. A table-spoonful every hour.

1, P.M. Leeches bled freely, with considerable relief; sinapism to the side.

4, P.M. Pain of side and difficulty of breathing gone; feels much easier in every respect; diarrhœa nearly ceased.

10, P.M. Feels quite easy at present; pulse 120, but soft; diarrhœa gone; skin cooler, and more moist; countenance not so anxious; still complains of thirst.

June 18. 11, A.M. Passed a quiet night, and slept well; feels quite easy about the chest and side; face less flushed; pulse 116, soft; skin moist; a good deal of thirst and nausea; diarrhœa returned; urine naturally evacuated. Toast and tea for breakfast, with relish. *Efferv. powder* every hour.

6, P.M. Diarrhœa still troublesome; nausea subsided; pulse 112, soft; skin cool and moist. *Anodyne lavement* with 50 drops of *laudanum*. Omit the *tartr. of antimony*.

9, P.M. No motion since last report; feels quite easy; skin dry; pulse 116. *Powder of ipecac.* with *opium*, 12 grains; *extract of opium*, 1 grain.

June 19. 7, A.M. Has slept well all night; no return of diarrhœa; awoke this morning at seven with a severe fit of dry coughing, which caused hæmorrhage to take place from the wound. It was easily commanded with the finger, until a narrow strip of lint was stuffed into the wound, and a compress placed above it. About eight ounces of blood were lost. Pulse 110, fluttering; countenance anxious; skin dry.

12 o'clock. No return of hæmorrhage; tongue furred; pulse 120, strong and irregular. Bloodletting to 20 ounces at once.

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"Among the recent, functional, and inflammatory affections, must be ranged the *pericarditis*, with its product adhesion by coagulable lymph; effusion into the right cavity of the chest; hepatization of the lung. That this was *red* hepatization, marking it as the product of *recent* inflammation, is clear from the general inflammation surrounding, and from the specific allusion to *redness of the vessels*—bronchitis. Thus, then, there were three kinds of acute or subacute inflammation engrafted on previous organic disease, namely, pleuritis and pericarditis, pneumonia, and bronchitis. This was a most formidable complication, and we have no doubt that the condition of parts was accurately ascertained, during life, and that the treatment was skilful and appropriate.

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EDINBURGH ROYAL INFIRMARY.

ANEURYSM OF THE SUBCLAVIAN ARTERY TREATED BY LIGATURE OF THE ARTERIA INNOMINATA, BY MR. LIZARS.—DEATH, TWENTY-ONE DAYS AFTER THE OPERATION.—POST-MORTEM APPEARANCES.

IN THE LANCET of June 17th last, we inserted a report of the above operation, performed on Alexander Duncan, on the 31st of May previous, and detailed the progress of the case for one week after that date. We are now enabled to publish a report of the entire case, with an engraving of the parts more immediately involved in the operation; and in order to place the whole before the reader at one view, we give in this place a brief outline of that portion of the report which has already appeared, commencing the additional details from the 8th of June, referring for full particulars to page 445 of the present volume of this Journal:—

Alexander Duncan, aged 30, a carter, admitted May 28, 1837. Fifteen months ago he met with a fall, and again another fall, on the elbow, eleven months since, which led, six weeks ago, to the appearance of a small pulsating tumour, above the clavicle, indicating aneurysm of the subclavian artery, for which Mr. LIZARS determined on tying the arteria innominata. The operator having arrived at the innominata, an aneurysm needle was carried round it, from the right side, upwards, towards the trachea; the ligature was seized, and the artery tied. The hæmorrhage during the proceeding amounted to about two ounces.

The patient was examined two hours after the operation, and did not present any unfavourable symptoms, excepting some pain in the course of the carotid and brachial arteries, and at about the elbowjoint, which, towards evening, were attended by pain, on inspiration, in the right side of the chest. The pulse was full, and varied from 74 to 78. The pulsation in the tumour

was completely suspended by the ligature of the innominata.

June 1. On the day after the operation the patient felt somewhat easy. The head is free, and a sense of suffocation, which has tormented him during the night, has gone off. He slept in the morning for a couple of hours, and passed the rest of the day without accident. The wound looked well.

3. The pulsation returned in the tumour, and a small quantity of blood distilled from the wound. The face seemed flushed, and the patient complained of the heat of the weather.

4. The pulsation in the tumour (which feels quite hard) has disappeared. He has passed three copious evacuations, and is free from uneasiness. Pulse 110, soft.

6. Patient progressing favourably. No accident has occurred.

June 8, nine days from the operation. Passed a good night, and feels quite easy; bowels regular; tongue moist, and almost clean; pulse 96, and soft; skin cool and moist; passed about two pounds of urine last night, and the same quantity was drawn off this morning.

9. Slept well all night, and has no particular complaint. The wound looks well, and has nearly healed; it is discharging thick, healthy pus. Tongue still furred, but moist; pulse 96; skin cool; appetite good. Took a little chicken soup with relish. Does not complain of thirst.

10. Slept well, and feels quite easy this morning. Still requires to have his urine drawn off in the morning. Pulse 92, soft; tongue very nearly clean; skin cool, appetite good.

11. Passed a good night, and is in all respects the same as yesterday. Two pounds and a half of urine drawn off.

12. Did not sleep so well as usual; perspiring a great deal. Complains of slight nausea. Tongue furred; pulse 100. Has had two stools since yesterday.

13. Passed rather a restless night. Complains much of thirst. Pulse 100; tongue furred, and rather dry; skin cool and moist; bowels regular; still complains of nausea; three pounds of urine were drawn off. Habeat q. pr. *calomel*, 3 grains.

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June 18. 11, A.M. Passed a quiet night, and slept well; feels quite easy about the chest and side; face less flushed; pulse 116, soft; skin moist; a good deal of thirst and nausea; diarrhœa returned; urine naturally evacuated. Toast and tea for breakfast, with relish. *Effervescing powder* every hour.

6, P.M. Diarrhœa still troublesome; nausea subsided; pulse 112, soft; skin cool and moist. *Anodyne lavement* with 50 drops of *laudanum*. Omit the *tartr. of antimony*.

9, P.M. No motion since last report; feels quite easy; skin dry; pulse 116. *Powder of ipecac.* with *opium*, 12 grains; *extract of opium*, 1 grain.

June 19. 7, A.M. Has slept well all night; no return of diarrhœa; awoke this morning at seven with a severe fit of dry coughing, which caused hæmorrhage to take place from the wound. It was easily commanded with the finger, until a narrow strip of lint was stuffed into the wound, and a compress placed above it. About eight ounces of blood were lost. Pulse 110, fluttering; countenance anxious; skin dry.

12 o'clock. No return of hæmorrhage; tongue furred; pulse 120, strong and irregular. Bloodletting to 20 ounces at once.

℞ *Extract of belladonna* one-sixth of a grain;
Aromatic powder, q. s.; one pill every two hours.

4, P.M. No more hæmorrhage; pulse reduced in strength but not in quickness; blood drawn, much cupped and buffed; countenance still anxious; bowels once opened; cough harassing.

℞ *Extract of belladonna*, one-third of a grain;
Aromatic powder, q. s.; a pill every two hours.
℞ *Tincture of digitalis*, 10 drops;
Tincture of hyoscyamus, 20 drops;
to be taken in a cup of water every second hour.

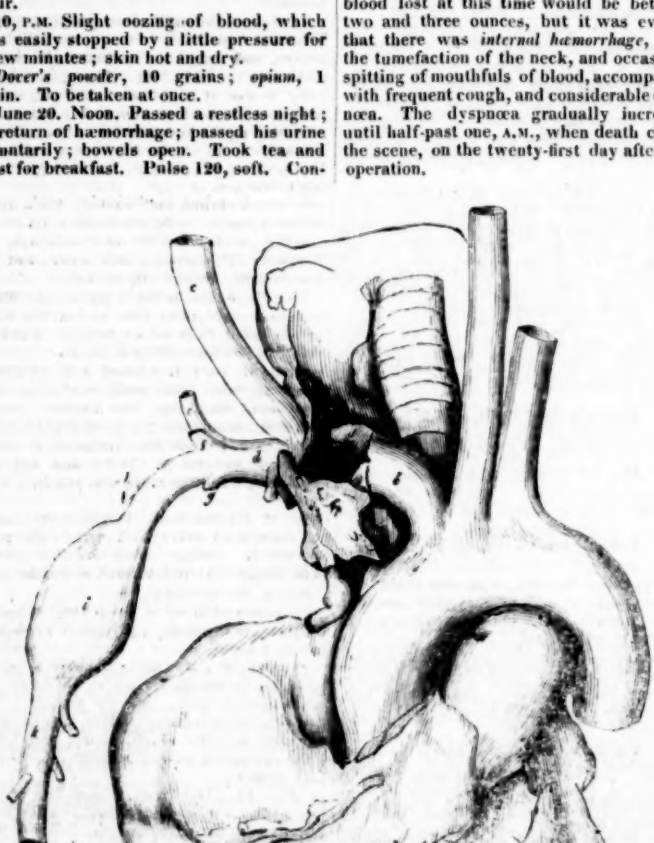
10, P.M. Slight oozing of blood, which was easily stopped by a little pressure for a few minutes; skin hot and dry.

Dover's powder, 10 grains; *opium*, 1 grain. To be taken at once.

June 20. Noon. Passed a restless night; no return of hæmorrhage; passed his urine voluntarily; bowels open. Took tea and toast for breakfast. Pulse 120, soft. Continue the medicines. Belladonna plaster to the sternum.

6, P.M. Hæmorrhage commenced at five o'clock, P.M., which was easily commanded by pressure upon the wound, and entirely stopped by the introduction of lint. The quantity of blood lost did not exceed four ounces. Pulse 96, soft; skin cool, but dry. *Dover's powder*, 12 grains; *Opium*, gr. jss. at once.

June 21. 2, A.M. Has taken some tea and toast; slept from 10, P.M., until half-past 12; feels perfectly easy; skin cool and moist; pulse 106, soft; hæmorrhage again took place at a quarter past one, A.M.; the external bleeding ceased on inserting an additional piece of lint. The quantity of blood lost at this time would be between two and three ounces, but it was evident that there was *internal hæmorrhage*, from the tumefaction of the neck, and occasional spitting of mouthfuls of blood, accompanied with frequent cough, and considerable dyspnœa. The dyspnœa gradually increased until half-past one, A.M., when death closed the scene, on the twenty-first day after the operation.



Inspectio cadaveris.

This had to be done privately and hurriedly, which must account for the brevity of the description. The wound of the neck was extended in every direction, and the thoracic cavity opened, when there appeared about twenty ounces of coagulated blood at the root of the neck and upper part of the right bag of the pleura, the apex of the right lung being pressed down in its cavity by the blood, for there were on this side adhesions throughout the pleura-pulmonalis with the pleura-costalis, of recent formation. The lungs of this side were apoplectic and softened. There were old adhesions on the left side, but the lungs were healthy.

The heart and arteries, as represented in the accompanying sketch, were healthy, with the exception of the tied point *a*, of the arteria innominata, and the aneurysmal tumour *i*, of the right subclavian. The point of deligation, *a*, shows the arteria anonyma separated a little in consequence of the bleeding, and there is some coagulated blood extending a very short way into the aortic portion of the innominata, *b*, and upwards into the right carotid, *c*, but none into the commencement of the subclavian, *d*. The vertebral artery, *e*, the thyroid, *f*, the internal mammary, *g*, and the transverse cervical, *h*, were all pervious without any coagula. The aneurysmal tumour, *i*, is collapsed, and full of coagula, as also is the subclavian, *k*, beyond it.

In concluding the history of this case we may add, that Professor Lizars is now inclined to believe, that a plan of operation more likely to succeed in a similar case would be first to tie the subclavian just at its origin from the innominata, and then to tie the carotid about an inch above its origin, with the view of allowing the formation of an internal coagulum.

NORTH LONDON HOSPITAL.

REMARKABLE AFFECTION OF THE SKIN SIMULATING CARCINOMATOUS DEPOSITS.

C. B., aged 50, was admitted, June 13, under the care of Dr. A. T. Thomson. She is a widow of temperate and regular habits; she has been engaged as a sempstress, and has been residing in a dry and airy situation; she does not appear to have any hereditary predisposition. She always enjoyed remarkably good health until about twelve months ago, when she was attacked with pain in the left breast, chiefly, however, confined to the nipple. The pain was of a throbbing character, the breast was exceedingly red, hot, and much indurated. She then applied for relief to a dispensary; a blister was applied to the shoulder, and she took some medicines, but without receiving any benefit. The pain continued to increase, and spread down the right side, and subsequently to the right shoulder, and was much augmented by pressure. She took medicine for three months at a neighbouring institution, but without relief. About six months ago a number of small, hard tumours appeared; in the first instance, she thinks, on the border of the right axilla, but they soon spread over the sternum and chest, involving both mammæ. These tumours were attended with great itching and tingling, but none of them were painful, except those situated upon the mammæ. The mammæ were now, she said, exceedingly hard, and much diminished in size. She has taken medicine until this period without any benefit.

At present, she suffers from pain in the right breast, not constant, but occasionally very severe, and extending to the right axilla, and down the right arm. The pain is generally worse at night when she is warm in bed, and then often extends down the right side, and right thigh and leg. She has also a similar pain in the left breast, but much less severe and constant, and never extending to the arm or side. Both mammæ are very much shrunk and wasted; the adipose tissue appears to be completely absorbed, and the glandular structure exceedingly indurated. The nipples still exist, but the integument around them has a reddish-brown tinge, and is much puckered. There has been no suppuration, and no discharge of any kind from either breast. The hard swellings before alluded to, have now appeared all over the chest and abdomen. They are also numerously scattered upon the back, shoulders, and axilla. In the latter situation they are exceedingly troublesome, and impede the motion of the arms. There are several of the tumours upon the neck, face, and the right arm and leg. They are of all sizes, from that of a millet-seed to that of a small nut. The skin upon many of them is slightly red, but upon others the colour is natural. They are not painful, but tingle and itch to such an extent as almost to prevent sleep.

The countenance of the patient is neither expressive of anxiety, nor has it a cachectic or cancerous aspect; the skin is perfectly dry, and she states that she never perspires. She has occasionally pain in the head, and dimness of sight, but no vertigo. Her bowels are constantly costive, tongue slightly furred, pulse small, sharp, and quick. The catamenia have disappeared for the last six months.

June 14. Dr. Thomson saw her, and ordered her a dose of calomel, to be followed by a black draught, and the following medicine:—iodide of arsenic one grain, extract of conium half a drachm, to be divided into ten pills, one to be taken every eight hours; three grains of hydriodate of potash,

thirty-six minims of liquor potassæ, in an ounce and a half of water, in the interval between each pill. Full diet.

16. She is much the same. Continue the medicines, and take every night the following pills:—blue pill two grains, extract of conium three grains, in two pills.

19. The tumours appear to be more moveable, and she moves her arms with greater freedom. The pulse is softer than before.

In lecturing on the case, at this period, Dr. Thomson observed that he had some difficulty in forming a diagnosis respecting it. Many of the circumstances present might lead to the supposition that it was carcinomatous, while there were others at complete variance with this opinion. The symptoms which were favourable to its being carcinoma consisted in the globular character of the tumours, the grouping together of several lobules, in one common capsule, producing an uniform tumour; the whitish colour, and the firm, almost cartilaginous, consistence of the tumours, the intermitting, darting pain which the patient had suffered, being at one time more severe than at another, and extending from the breast down the arm—symptoms and signs more or less frequent in carcinomatous deposits. The facts against the opinion of carcinoma were the want of granular structure in the tumours, the absence of cachectic sallowness of the countenance, the general good health of the patient, and the want of the predisposing causes of carcinoma, the abuse of spirituous drinks, &c. This woman, however, had suffered considerably from mental depression, and considering this to be carcinoma, the affection of the mind might be laid down as the predisposing cause. The want of bulk in the tumours was also unfavourable to the opinion of their being carcinomatous. If the disease were not carcinoma, to what class of cutaneous diseases did it belong? The nearest resemblance to it that the lecturer knew, was the molluscum pendulum of Bateman; for though in that disease the tumours were generally pendulous, it was by no means invariably the case. He mentioned these facts to show the extreme difficulty of forming a diagnosis of the case. Under these circumstances he had determined on treating the case by the medicine ordered on the 14th of June. If the disease were carcinoma, the combination there employed would be useful if anything could be of benefit. He had attended a lady, 46 years of age, who had incipient cancer in both breasts, the tumour on one side being fixed, on the other moveable, accompanied with a severe darting pain; the arms had become œdematous, the health was rapidly sinking, hectic fever had set in, the tongue was white, the nights restless, the complexion sallow and anxious. The complaint was decided to be carcinoma, by a distinguished physician and surgeon besides himself. The plan which he pursued was the application of ten or twelve leeches at short intervals during ten months, with fomentations of poppy heads, and the administration of pills consisting of iodide of arsenic and extract of conium every eight hours. The last was increased gradually, until she took a drachm in the twenty-four hours. Iodide of iron was given in the interval between the doses of the pills, to keep up her strength; she was placed on milk diet, and no stimulants were allowed. She was nearly twelve months under his care, before the end of which time the tumours entirely disappeared, and the patient got quite well. He saw this lady two days since, and she still continued in good health. The result of this case disposed him to try the same plan of treatment in the case of C. B.; viz., the use of small doses of iodide of arsenic to stimulate the capillary vessels, and the extract of conium carried to the utmost dose.

If we looked at the cases recorded by Stoerk, we should find that we did not give conium to any thing like the extent he recommended; it was therefore not fair to give an opinion of its inefficiency in the cure of carcinoma; the liquor potassæ assisted the iodide of arsenic, and improved the digestive organs. Whether it was owing to the plan of treatment pursued he would not say, but certainly the general health of C. B. had greatly improved, and she felt much more comfortable than she did previous to her admission into the hospital. If the disease were carcinoma he did not expect to cure it; but he thought that the medicine would have the effect of checking the progress of the disease. He would not give a decided opinion that the affection was carcinomatous.

23. The patient expresses herself as being more comfortable; the mammæ are more moveable and less tight in every respect. The base of a tumour which had been dissected out is very hard, but with no unhealthy aspect. She sleeps well. Continue the medicines.

26. Tumours very much improved; reduced in size and softer; mammæ more moveable. The complexion is improved. Continue the medicines, but add two grains of the extract of conium to each pill.

28. The aspect of the tumour is improved. The patient complains of pains in the lower parts of the abdomen, on which account the use of the iodide of arsenic was discontinued for a few days, and the bowels ordered to be freely opened.

July 2. She continues to improve. As the abdominal pains are gone, let her resume the use of the iodide of arsenic.

WESTMINSTER HOSPITAL.

ABSCESS IN THE ABDOMINAL PARIETES, COMMUNICATING WITH THE INTESTINES.

Richard Paton, ætatis 78, was admitted under Mr. A. White, with hard cataracts. The general health was excellent, and the lens in each eye was ripe for extraction. The other parts of the eye-ball were perfectly sound, but a slight inflammation existed in the lids; the operation was therefore postponed. The patient has enjoyed uninterrupted health during the whole period of his life, and he did not complain of any disorder, beyond that of his eyes, at the time of his admission. About a fortnight after his coming in, he was seized with pain over the entire abdomen, accompanied by the general signs of fever; on the following day, the fæces had diminished, but the pain still continued, and was attended with severe diarrhœa and flatulence. The diarrhœa was alleviated with doses of castor oil, and laudanum, and afterwards of aromatic confection, &c., but though the pain was lulled, the flatulence remained unabated. Three days after this time, an accession of the diarrhœa occurred; this attack was characterised by very acute pain and tenderness over the entire abdomen. These symptoms were mitigated with strong opiate injections, and a pill, consisting of half a grain of opium and a grain of calomel, was administered three times a day. The pain, though general over the abdomen, was greatest in the right iliac fossa. The paroxysms of pain, were occasionally very severe, but it had more the character of colic than peritonitis. The flatulence was not diminished by the use of the remedial means adopted. These attacks of pain occurred every three or four days for a month, and the patient became excessively exhausted, as was evinced very plainly by the expression of his features.

On the 28th day after his admission, the pain in the right groin was very severe, and the skin above the seat of pain, became red and tumified. During the night the tumour broke, and a large quantity of healthy purulent matter escaped On the morning of the 29th day (reckoning from his admission) there was an opening in the integuments about two inches below Poupart's ligament, with dark unhealthy edges, discharging a most offensive matter, having a fæculent odour. The surrounding integuments are swollen and discoloured, and very tender when pressed. When the patient coughs, the matter escapes more plentifully from the wound. A common poultice ordered to be applied.

On the 34th day the opening had become larger, and the inflammation had increased in intensity, and spread widely; the discharge had the same character. The abdominal pain was neither so constant nor so severe since the bursting of the abscess. The bowels were open three or four times daily; it was not apparent that there was any increased discharge from the wound during the efforts of dejection.

37th day. The patient grows weaker daily. No alteration in the state of the wound. He is ordered a nutritious diet.

42nd day. The sloughing has undermined the skin in the groin. This external opening is now enlarged with a scalpel. The anterior surface of the wound looks more healthy, the slough is separating, the discharge is less in quantity and less offensive. The diarrhœa was checked yesterday by the opiate injections, but it has returned to-day. The glysters and poultices to be renewed.

46th day. The diarrhœa became more and more severe, and the stools became mixed with blood; the patient gradually sank, and died this morning.

Necropsy Twenty-four Hours after Death.

The cellular tissue on the right side of the abdominal parietes was thickened; the lower portion of the ilium was closely adherent to the anterior wall of the peritoneum and to the iliac fossæ; the cæcum and ascending colon were united by adhesion to the adjacent parietes, but most intimately on the posterior aspect. An extensive abscess was found occupying the right iliac fossa, involving posteriorily the psoas magnus and iliacus interinus muscles, but not connected with the vertebræ. The pus had dissected its way anteriorly between the peritoneum and abdominal muscles. It descended into the pelvis between the pelvic fascia and levator ani muscle, guided in its course by the rectum. From the orifice in the groin, two communications were found to exist, with the main chamber of the abscess; *one* on the outer side of the artery and vein accompanying the tendons of the psoas and iliacus muscles (the substance of which was nearly destroyed by the sloughing);—the *second*, issuing between the iliac vein and artery; at this point, inflammation had apparently attacked the vein, in which, there was a deficiency of the inner and middle coats, for an inch of its length, the outer thin cellular coat alone preserving the vein entire. At the same place, a clot of lymph was found attached within the vessel, entirely blocking up its channel. The abscess had also three points of communications with the intestinal canal. One with the ilium, about two inches from its termination by an opening sufficiently large to admit the point of the finger. A second, with the cœcum near the insertion of the appendix vermiformis, (which was adherent to the sides of the abscess, thickened and obviously disorganized.) The third was with the colon, about two inches from the cœcum, and which was smaller than the other foramina. The mucous membrane of the large intestines was generally much congested, in parts softened, and at one point ulcerated.

OPHTHALMIC HOSPITAL, CANTON.

(Communicated by Mr. A. Currie, Westminster.)

ENORMOUS ENLARGEMENT OF THE ARM. OPERATION.

The following remarkable surgical case occurred at the above Hospital, last November:—

A young man of the name of Po-Asing, now 23 years old, six years ago fell from the roof of a house, and broke the left arm midway from the elbow to the shoulder. He applied to a Chinese physician, and the arm again became serviceable to him, till, about six months ago, by some accident, it was broken a second time. From that period it began to enlarge gradually, till it attained an enormous size. When he came to the hospital, on the 3rd of November, the average circumference was thirty inches; the veins passing over it were considerably enlarged. It evidently contained fluid, and strong suspicions were entertained that it might be of an aneurysmal character. The weight of the arm was burdensome in the extreme, and painful; at several points it seemed ready to burst; of which, if, as supposed, the artery was opened, the consequence might be immediately fatal. Under these circumstances a consultation of several gentlemen was held, and all were unanimous, that something must be done soon, if ever, for the safety of the young man. On Monday, 20th, Doctor Parker, assisted by Messrs. Cox, Cullen, Jardine, and Bonsall, punctured the arm with a lancet, preparations being made for the removal of the arm if necessary. Thirty-two ounces of dark fluid, and some venous blood, were discharged, but the father of the young man not being present to take upon him the responsibility of an operation it was deferred till Tuesday, when he gave the agreement usual in cases of danger of fatal termination. The above gentlemen again giving their assistance, the arm was amputated at the shoulderjoint; the time did not exceed one minute since the scalpel was applied to the arm till it was laid aside; the axillary artery was readily secured with a moderate loss of blood. The patient endured the operation remarkably well. The whole arm weighed 16 catties, equal to about 21lb. The bone, except an inch and a half of each extremity, was *completely absorbed*, and its place supplied by cartilage three inches deep on the inner side and near the elbow.

The patient is now doing remarkably well, and a favourable termination is confidently expected. This is, to our knowledge, the first Chinese that has voluntarily submitted to the amputation of a limb, it being against their principles.

MEDICAL MISSIONARY SOCIETY. (*From the Canton Press, Nov. 16th*, 1836.)—In our Journal of the 22nd October, 1836, we published the prospectus of a society about to be established under the above avowed title. In this establishment the *Ophthalmic Hospital* was to be merged, and the plan of operations was to be very much enlarged. We hoped that the foreign community at Canton would come forward with liberal subscriptions, to advance these benevolent plans. Some subscriptions have been received, but the public (so liberal upon other occasions) has but coldly co-operated with the promoters of the medical missionary scheme, and funds are not forthcoming very readily.

THE following announcement of the sale of a BATCH OF PATIENTS—we forget the term which was used before the passing of the Emancipation Act, on the Jamaica estates, when a great sale of *slaves* was held, but it was either *batch* or *drove*—appears painted on a board in Surrey-street, Strand, affixed against one of the houses, and has since appeared in the *Globe* newspaper:—

"PUBLIC NOTICE.—The medical practice of Mr. W. Radnor, having been SOLD to Mr. Dunn, Surgeon, etcetera, all applicants are respectfully referred to *him*, at 15, Norfolk-street."

Mr. Radnor's "APPLICANTS," now sold to Mr. Dunn, must feel highly gratified at this staring notification of their bargain and sale. The bill of accompt, "Mr. Dunn, Dr., to W. Radnor, Cr.," would form another pleasing document for public exhibition.

A SOCIETY has been formed in London, under the title of the LONDON ELECTRICAL SOCIETY, and Mr. Crosse, Lieut. Morrison, and several other scientific gentlemen, are amongst the members. Its meetings are held at the Laboratory of Science, Lowther-arcade, Strand, every Saturday evening, at eight o'clock, and visitors are allowed to take part in the discussions.

DR. LITTLE informs us that he has successfully treated six cases of club-foot, by divisiou of the tend. ach., besides the case related by Mr. Ray, p. 589 of the present Number of THE LANCET, since Dr. L.'s letter on the subject appeared in this Journal in March last. In one of them, division of the tendons of the tibialis posticus and tibialis anticus was required. He proposes to furnish us with an account of his treatment, illustrated by diagrams.